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INDEX TO CONTENTS, PAGE 12 ADVERTISERS' INDEX, PAGE 20

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Applying Gas Burners to Existing Appliances Using Other Fuels

Better to Have Too Much Than Too Little Burner Capacity—When Speed of Heating Is a Requisite Recourse Must Be Had to Blast Type Burner

By GILBERT C. SHADWELL

What kind and size of burners ought we to use under John Doe's 150 gal. kettle?

This is one of the many hundreds of questions that come up before gas companies daily, and one (in the form given) which is not easy to answer without more information and without knowing a little more about the kettle. For instance, is it a "round" kettle? How deep is it? In what kind of a furnace is it mounted? What is the material to be heated? Also to what temperature is it to be raised and in what length of time? Then, what are the dimensions of the grate, fire door, ash pit door, etc.

Some of the Questions That Must Be Answered

These are all some of the more important questions which must be answered before an intelligent solution of the problem can be obtained. In fact, an exact result cannot be obtained until the proposition has been definitely computed or unless the gas man has had so wide an experience that he can state with accuracy the size and type of burner by the results of that experience.

It is not practical merely to say "use a three-ring (or a four-ring or any other sized) burner." Why should such a burner be used? Merely because a certain manufacturer makes them with this or that number of rings? One manufacturer may put out a three-ring burner having a total gas consumption of but 40 cu. ft. per hour, whereas there may be another burner with three rings burning 300 or 400 cu. ft. per hour, and doing the work even more efficiently. Or, again, how large are the rings? Are they such as to give the best practical distribution of heat?

All such questions must be answered by the gas man himself, and this is best accomplished by figuring out the whole problem "from A to Z."

The appliances to which gas may be applied may be divided roughly into five classes:

1. Furnaces having pots, tanks or kettles and requiring a temperature of not over 1,000 deg. Fahr.
2. Furnaces of the former type requiring a temperature in excess of 1,000 deg. Fahr.

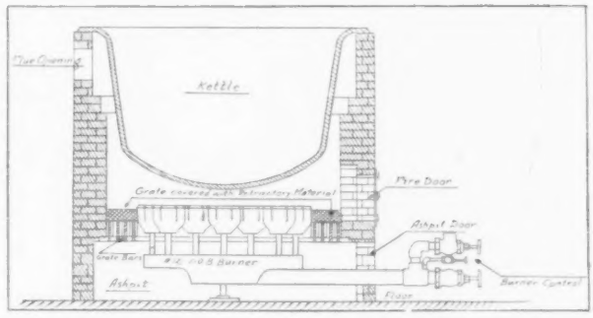


FIG. 1—SHOWS HOW TYPICAL INSTALLATION SHOULD BE MADE

3. Ovens, smoke houses, etc.
4. Forges, oven furnaces, kilns, etc.
5. Boilers, etc.
6. Ranges and miscellaneous heating.

It is proposed only to deal particularly with the first class in this article, although the others will be considered in their turn in later discussions of this subject.

A Typical Case

We will suppose that the answers to our questions, therefore, have been obtained and that a sketch of the kettle in its mounting is, as shown in Fig. 1 (showing resultant burner equipment after conversion to gas has been made, details of which will follow).

We will tabulate the date as follows:

Type of kettle, "round" cast iron.

Nominal capacity of kettle, 220 gal.

Actual capacity of kettle, 200 gal.

Liquid actually heated to 6 in. of top or thereabouts, 150 gal.

Name of liquid, linseed oil.

Approximate specific heat of liquid, 0.5.

Temperature required, about, 500 deg. Fahr.

Atmospheric temperature, 70 deg. Fahr.

Time to be taken in heating oil, one and a half to two and a half hours.

Construction of furnace, brick (as in Fig. 1).

Fuel used previously, coal (anthracite).

Diameter of grate, 30 in. (approximately).

Location and size of doors, size of fire door, size of ash-pit door, height from bottom of kettle to plate, height from top of grate to ash-pit floor (see Fig. 1. Scale one-eighth full size, approximately).

Gas available, 600 B.t.u. per cubic foot (approximately) carbureted water gas.

We now know something that will enable us to determine the burner required for the work.

First of all, the effective thermal capacity of the 600 B.t.u. gas may be assumed at about 80 to 90 per cent. To be perfectly safe we should take the lower figure, because, provided the required burner has an adequate range of heat control, it is much better to have too much than too little burner capacity. We will therefore assume 500 B.t.u. per cubic foot to be effective.

We know also that about 150 gal. have to be heated to 600 deg. Fahr. in about two hours. A gallon of linseed oil weighs about 7.84 lb. (see tables), therefore 150 gal. equals about 150 × 7.8 lb., or, say, 1,176 lb.

We will assume the initial temperature of the liquid we are going to heat to be 70 deg. Fahr., so that we will have to heat through (500 — 70) deg. Fahr. = 430 deg. Fahr.

The number of B.t.u.'s required to heat 1 lb. of water through 1 deg. Fahr. = 1 B.t.u. (specific heat of water being = 1), and to heat other different liquids through different temperature ranges depends on their specific heat, as in the table shown below:

Specific Heat of Liquids

Acetic acid	0.4125
Alcohol (grain)	0.7000
Alcohol (wood)	0.4580
Benzine (benzole)	0.4500
Bromine	1.1110
Ether (ethyl)	0.4810
Fusel oil	0.5640
Glycerine	0.6120
Linseed oil (about)	0.5000
Mercury	0.0333
Olive oil	0.3100
Petroleum	0.4340
Sulphuric acid	0.3350
Turpentine	0.4720
Water (standard)	1.0000

Gases

Air	0.2375
Acetylene	0.3730
Ammonia	0.5083
Benzine vapor	0.3754
Carbon dioxide	0.2170
Carbon bisulphide	0.2088
Carbon monoxide	0.2470
Cyanogen	....
Ethylene (olefiant gas)	0.4040
Ethylene chloride	0.2030
Hydrochloric acid	0.6000
Hydrogen	3.4090
Hydrogen sulphide	0.2432
Methane	0.5929
Nitrogen	0.2438
Oxygen	0.2175
Steam	0.3050
Sulphur dioxide	0.1553

Hence we have:

150 gal. of linseed oil = 1,176 lb.

Specific heat of linseed oil = 0.5.

Temperature change from 70 to 500 deg. Fahr. = 430 deg. Fahr.

Therefore, B.t.u. required per hour = 0.5 × 1,176 × 430 = 253,840 (B.t.u. per hour).

Assuming on the above-mentioned data per hour a net efficiency of 33 1/3 per cent, we need a total utilizable fuel output of 761,520 B.t.u. per hour (about).

A cubic foot of the city gas in question = (say) 600 B.t.u., thus we require (approximately) 1,270 cu. ft. of gas per hour. But the oil is to be heated in one and a half to two and a half hours, therefore the gas requirements per hour are about 840 cu. ft., if the shorter time be taken.

It is not easy to build an atmospheric burner that will burn satisfactorily in the space available, or which will consume the gas at the rate necessary to accomplish the work as required from the above figures. Recourse must therefore be had to a blast burner in this instance, the nearest being a group of, say, 12 fan blast pyrogenetic burner heads (hexagonal; found to burn 825 cu. ft. per hour and thus very closely approximating the required gas-burning capacity). The size being requisite, also, this choice is good on account of the high efficiency which will be obtained.

Making the Installation

A study of Fig. 1 will show how the installation should be made. The use of some refractory material, such as broken firebrick, laid in between the burner heads and surrounding them, adds to the efficiency, and can be adopted with satisfactory results. By similar computation, if the work could have been accomplished in a greater length of time to enable the gas to be reduced to, say, 500 cu. ft. per hour, an atmospheric burner might have been used, as it could be suitably installed in the space available.

In this connection it should be pointed out that, although a relatively large amount of flue area may be necessary when coal is burned in a furnace, this area must be suitably reduced when the conversion is made to gas in order to secure maximum efficiency (each 10 cu. ft. of gas per hour usually requires 1 sq. in. of flue area when atmospheric burners are used).

This is a matter frequently occurring, and is perhaps most commonly met with when changing over such equipment as stereotype furnaces to gas.

In such cases the ash-pit door and fire doors have to be closed almost completely, except for a small peek-hole. The burner is then lighted and turned fully on, the damper being shut.

Hot flue gases will emerge from the peek-hole. Proper adjustment is made until a "balanced draught" is obtained which will exist when the hot flue gas just ceases to emerge from the peek-hole.

It is not usually possible to work to a balanced draught condition of such a slender amount in the case of coal fires, due to the fact that the only velocity the

flue gases have is that brought about by their temperature and the length of the smokestack.

A gas burner, on the other hand, especially when operated with air blast, gives to the flue gases an initial velocity of their own, and thus makes it possible in many cases to restrict the flue to the lowest limits.

When It Pays to Make the Conversion

The application of gas to stereotype furnaces being of particular value, especially at this time, will be dealt with at greater length later.

Whether it pays to convert any appliance to gas or not depends on many factors, the chief of which is the ultimate cost of the finished product, having in mind the initial cost of the complete equipment.

It would, obviously, seldom pay to convert a coal-fired candy furnace to gas, because the cost of the furnace is so low and the results achieved would so seldom warrant the change.

On the other hand, there might be an expensive oil kettle or metal melting furnace which can have gas-burning equipment easily installed, also the design can often be suitably modified to give a somewhat improved efficiency by means of a few simple changes, such as decreasing the space between the outside of the pot and the furnace walls, so as to utilize more heat than would be convenient when coal is employed. Or a change might be made by the introduction of one or more baffles to bring about similar results.

Any such conversion can be carried out satisfactorily provided complete data outlined above has first been obtained and a definite figure arrived at for the size of burner, bearing in mind what has to be cared for.

Many vessels requiring heat being cylindrical, or nearly so, the following table will be found of value in computing the capacities of such vessels as are approximately cylindrical in shape.

Diameter (inches)	Gallons per Foot of Depth	Lb. of Water per Foot of Depth
12	5.9	48.9
18	13.2	110.2
24	23.5	195.9
30	36.7	306.1
36	52.9	440.8
42	72.0	600.0
48	94.0	784.0
54	119.0	991.7
60	146.9	1,224.3

The thermal capacity of different fuels may be given approximately as follows:

Fuel	Approximate or Average Thermal Capacity (B.t.u.)* Per Lb.	Per Gal.	Per Cu.Ft.
Wood	8,600	.....	...
Coal (bituminous)	14,000	.....	...
Coal (anthracite)	15,000	.....	...
Tar	16,000	145,000	...
Naphtha	18,000	102,000	...
Kerosene	18,000	120,000	...
Fuel oil	24,000	180,000	...
Producer gas	.....	.....	140
Water gas (straight)	.....	.....	300
Coal gas	.....	.....	550
Water gas (carb.)	.....	.....	600
Natural gas	.....	.....	950

*In steam boilers 1 lb. of average coal will evaporate from 7 to 10 lb. of water. A gallon of oil will evaporate about 100 lb. of water. A cubic foot of natural gas will evaporate 0.9 lb. of water. One boiler horsepower requires about 45 to 55 cu. ft. of natural gas or about 90 to 100 cu. ft. of artificial gas (unless specially built for gas, when the latter figure becomes 65 to 80 ft.).

Latent Heat of Fusion

	B.t.u. per Lb.
Beeswax	76.14
Bismuth	22.75
Bromine	29.12
Cadmium	24.58
Gallium	34.40
Ice	142.65
Iron, grey	41.40
Iron, white	59.40
Lead	9.66
Mercury	5.09
Palladium	65.34
Paraffine	63.27
Phosphorus	9.06
Platinum	48.90
Potassium, nitrate	85.26
Silver	37.93
Spermaceti	66.56
Steel	36.00
Sulphur	16.86
Tin	25.65
Zinc	50.63

The subject of the conversion of appliances to gas is almost limitless. The considerations are so great that it is practically impossible to do more than skim the surface in an article of this character. To do adequate justice to the subject it would be necessary to deal with each appliance in detail, its operation when used with coal, oil or other solid or liquid fuel, followed by its performance with gas. Test operation data would have to be included in every case, and details of burner construction and operation would of necessity also need to be included together with much other information.

Details That Should Be Left to Manufacturer

The average gas company will find it expedient to leave most of such details up to the gas burner and appliance manufacturer when handling unusual problems, but in order that he may state explicitly what the problem amounts to, exact information should be furnished. Moreover, it is often of importance that even in the case of the simpler conversion problems the manufacturer be given such data as will form a guide as to what burner to offer, and this will also provide a check for the gas company in making a comparison of the computations arrived at.

The data required by a manufacturer in order to make a suitable recommendation, although varying in the case of each different kind of appliance, is essentially the same fundamentally.

The following are briefly the most essential points in all problems of this sort:

1. Show a dimensioned sketch.
2. What is the present fuel?

3. What do present and proposed fuels cost per unit and per hour?
4. How is the product handled?
5. Why does the customer desire to change over to gas? (State if because of a desire for a better product, cleanliness or other cause.)
6. Describe the material.

The following will explain those questions to be answered in a few specific cases:

A.—Information Required Regarding Burner Equipment for Heating Ovens

1. Supply a dimensioned sketch showing the construction of the oven. (a) Front view showing doors and their location. (b) Side section showing size and arrangement of combustion chamber or present burner equipment and flue arrangements.
1a. What are thickness of walls, material used in construction and nature of insulation?
2. Is the oven direct or indirect fired at present?
3. Is the oven to be fired direct or indirect?
4. What is the work to be performed in the oven?
5. How many ovens are there?
6. What temperature is required in the oven?
7. How long should it take to heat to the required temperature?
8. How long do you wish to take in finishing the work?
9. What is the average weight of material in a charge?
10. How is the material handled (on trucks, shelves, etc.)?
11. How much and what kind of fuel is being consumed per hour, average, at present?
12. What is the cost of your present fuel?
13. What is the cost of your proposed fuel?

B.—Conversion of Coffee or Cocoa Roasting Ovens to Gas

1. Show cross-section of roaster, including arrangement of firebox.
2. Show another view of the roaster, indicating the size and location of doors, especially with their relative positions from the cylinder.
3. State direction of travel of cylinder at present time (clockwise or counterclockwise).
4. What is the make of roaster and the catalogue number?
5. What temperature is used at present and what is desired?
6. How quickly must the batch be roasted and how quickly is it being roasted now?
7. What is the weight of the material carried in the roaster per batch?
8. Does your customer wish any particular points to be cared for?

C.—Information Required on Burners for Converting Existing Electrotype Furnace to Gas

1. What is the make and catalogue number of the furnace?
2. What is the rated capacity of the pot?
3. What are the exact inside dimensions of the pot?
4. If not of a well-known make, supply a dimensioned sketch showing front view and plan including: (a) All dimensions of pot. (b) Size and location of doors and grate relative to floor and bottom of pot. (c) Overall dimensions.
5. Is pressure air available? If so, state size, speed and type of blower, pressure of aid and quantity available for use.

C-1.—Converting Existing Stereotype and Other Soft Metal Furnaces to Gas

1. What is the name of the manufacturer of the furnace?
2. What is the manufacturer's catalogue number?
3. What is the rated capacity?
4. If not of a well-known make, please show a dimensioned sketch giving: (a) Pot diameter and depth. (b) Size and relative location of firing and ash-pit doors. (c) Distance from bottom of pot to grate and from grate to ash-pit floor.
5. What is your present fuel and the cost of it?
6. What is the cost of gas?
7. Is pressure air available; if so, state quantity, pressure, etc.?

D.—Information Required Regarding Air Heaters for Drying

1. Supply a dimensioned sketch showing the construction and arrangement of the dry room.
2. What is the exact nature of the material to be dried?
3. What is the weight dry of a maximum charge?
4. What is the weight wet of a maximum charge?
5. How is the material being dried now?
6. How long does it now take to dry it?
7. How long is it desired to take to dry it?
8. At what temperature is the material to be dried (state maximum and minimum)?
9. How is the material desired to be handled for greatest convenience (if there is any preference)?
10. How is the material now being handled?
11. What is the kind of moisture to be driven off (i. e., water, benzene, gasoline, etc.)?

E.—Converting Steam Boiler to Gas

1. Supply a dimensioned sketch showing: (a) Front view of boiler. (b) Sectional view of boiler.
2. Show size of firing and ash-pit doors and their dimensions relative to crown of boiler grate and ash-pit floor.
3. What is the amount of steam in pounds or horsepower used per hour on an average?
4. What is the rated horsepower of the boiler?
5. How much coal per hour is used, in pounds, on an average?
6. What will be the maximum and what will be the minimum quantities of steam used per hour?
7. If we cannot put a burner in through one of the doors, will it be easy for you to insert it underneath the boiler or any other way?

It is the writer's intention to devote a separate article to the subject of each one or more of the above and similar installations, but a few words may be given regarding those mentioned at this time.

Case A, concerning ovens, is unusually broad, be-

cause there are so many kinds and types of ovens, and they, in turn, are employed for so many different purposes. In all cases, however, it is usually essential to obtain as uniform a temperature in the interior as possible. This is accomplished in many ways, but chiefly by the use of straight burners or radiators, which may be of the atmospheric or blast type, depending entirely on circumstances. If the oven is not too wide, a pipe burner or radiator (depending on whether direct or indirect heat is needed) may be placed on each side from front to back (running as far as possible the full depth of the oven), the proper gas consumption having been calculated. Where the oven is too wide it may be necessary to place one or more additional heating units (burners or radiators) in between those at the sides, provided, of course, that they will not interfere with any truck or other accessory which may be used for the product, or provided that the construction of the oven will allow of this being done. If space allows the heating units being placed at the sides, only then suitable artificial means must be included to obtain such a circulation of the heated air as will give a desirable uniformity of temperature in all parts of the working space in the oven.

This arrangement makes no provision for ovens carrying a number of trucks, such as tin plate decorating ovens, etc. In such cases it is usually best to place a heating unit between and parallel to each truck. Other similar methods have to be employed in the case of conveyor or reel ovens as well as core ovens and other classes of these appliances, although different means are often necessary to secure the ends in view.

Converting Coffee Roasters

The Case B of the conversion of coffee-roasting ovens to gas varies, of course, with the kind of oven in view. Here again spot heating must be avoided in almost every case so that a long burner is usually needed. Care has to be taken to remember the direction of rotation of the drum and govern the direction of the flame accordingly. Atmospheric burners may often be employed, but where blast is desirable it is generally desirable to use one or more pipe manifolds, into which are tapped a number of single port pyrogenetic heads. The refractory in these heads gives off radiant heat, which allows the headroom for combustion to be decreased and largely imitates a coke fire in its ideal form.

Pyrogenetic burners operated with fan blast (or positive blast or high pressure gas and single control) apply equally well to Cases C and C-1 (electrotype and stereotype furnaces). The former requires the longitudinal type of burner and the latter the hexagonal type (both formed into suitable groups). Extra atmospheric burners for keeping the pot hot during idle hours are needed in the case of stereotype furnaces, so as to avoid any damage being done to the pot.

A gas company should most carefully avoid attempting to convert these appliances to gas except with a burner which has been specially constructed for the particular make, size and style of furnace under consideration. Nothing is more likely to kill the business than experimentation at a newspaper's or electrotyper's shop. Such concerns need a burner equipment of exactly the right size and style, so that it can be slid into place immediately. The conversion should be possible with not more than one hour's work. A special size of pyrogenetic burner is made for every size and make of stereotype and electrotype furnace, and requires no change in its construction when installed beyond the removal and replacement of the heads which can be taken care of instantly as the burner is slid into position.

What Burner Should Not Be Installed

A burner which needs the removal of the pot before it can be installed will not be tolerated, and if offered will tend to do considerable harm to the use of gas for such purposes.

With regard to Case D, covering the conversion of dry rooms to gas, air heaters are now made in so many sizes that very little is needed beyond the introduction of the necessary air ducts and connections. This matter, however, embodies many other considerations that the subject will be considered later at greater length.

The same consideration will later be given to other conversions, including steam boilers (Case E).

Most steam boilers may employ atmospheric burners, blast usually being necessary only in such cases where the firebox space is limited.

It is usually necessary to supply a burner which has been built up specially for the job, and which can be taken apart for insertion in its place and reassembled when inside the firebox.

In the case of converting steam boilers to gas it is best to figure on 100 cu. ft. of gas for each horsepower of steam consumed, and this should be stated to the consumer before going further with the work so as to see if he will stand for the expense.

A little care in making each installation as efficient as possible will well repay the small effort taken.

Pipe Line Laid Under 30-ft. Depth Estuary Gets San Francisco Company Its Biggest Gas Consumer

Bethlehem Shipbuilding Corporation Adopts Gas for Riveting Plate Bending and General Machine Shop Work—Consumption Will Reach 500,000 cu. ft. Per Day

Gas is to be used exclusively by the Bethlehem Shipbuilding Corporation's Alameda plant for rivet heating, plate bending and general machine shop work from now on, and a contract was made this week with the Pacific Gas & Electric Company for the delivery of 500,000 cu. ft. of gas daily to their Alameda works. This makes the Alameda works of this corporation what is believed to be the largest single consumer of gas on the Pacific Coast, but it has a far deeper significance than that, for it means that oil and coke will both be abandoned and gas substituted. This is a radical departure in the shipbuilding methods that have been in use for years, where it was thought that only coke could be used and where even oil was considered an innovation.

Heating the Essence of All Riveting

Heating is the essence of all riveting. When records have been established, it has been largely because of careful attention to heating. For years it was thought that only coke could produce the results desired. After a while oil, the great California fuel, was used in the

San Francisco Bay yards. But oil had the disadvantage of producing a gas that became very dangerous, unless it was carefully watched, and even with great care many accidents have happened in the plants that line Oakland harbor.

The Moore ship plant tried gas for heating, in a small way, and it proved very satisfactory. It was found that it could be operated much more easily than either coke or oil, and that it was cleaner and infinitely more safe.

The Alameda plant of the Bethlehem company initiated some experiments of its own, with such satisfactory results that they determined to use gas exclusively in all parts of their plant where possible.

Transmission Difficulties

But the Bethlehem company found an engineering difficulty that did not confront the shipyards on this side of the bay. There is no gas producing plant in Alameda, and to get mains across the estuary that would carry 375,000 cu. ft. of heating gas during the daylight eight-hour shift was a problem. The Pacific Gas & Electric Company had the capacity at its Oakland factory, but it was a question as to how to get the pipe line under the estuary where it would not be disturbed by dredging or shipping, and where it would not be broken or bent by tide flow or similar disturbances. To carry the line under the mud and water was not an easy task.

Harbor Depth 30 Ft.

The gas company first laid a special pipe line in Second Street, from its works at First and Market Streets, to a point opposite the shipbuilding plant. This was easy, and it was the crossing of the estuary that taxed ingenuity. The harbor bottom is about 30 ft. below average low tide, and a trench was dredged 10 ft. deeper than that into which the pipe line sunk, allowing the wash of the tide to partly cover it after it was laid. The pipe line was made solid, joints being welded. This was done on land, and when the entire length had been completed it was drawn into place, care being taken that no water entered the ends. The pipe sank easily into its place at the bottom of the dredged trench and without a break. The connecting up of the ends was a job of minor importance.

Keeping water out of the pipe was the main feature. For that reason the inside was made absolutely dry at the start, and the outside was water-proofed with three coverings of tar and paper. But some water always occurs from the condensation of gases, and this had to be provided for. At the lowest part of the pipe line, near the center of the estuary, a small tank was built, and the main pipe line was tapped over this tank, so that it served as a catch basin for all drainage. This tank was then connected with the shore by a small pipe line, slightly over 1 in. in size, running through the main pipe line, which is 8 in. in diameter. Force pumps stationed at the works easily keep the catch basin free from all condensation.

Cost of Construction

The total length of pipe from the Oakland gas works to the point of usage in Alameda is 3,400 ft. and the crossing of the estuary is 1,200 ft. The cost of installation was about $15,000.

The Alameda plant will use half a million cubic feet of gas every day, and 375,000 cu. ft. of this will be used during the daylight shift.

The use of gas will mean some changes in the method of construction. More of the work will be done on the ground. More riveting will be done with men working on the ground rather than on scaffolding, and the pieces fitted on the ground will be swung into place by cranes for placement. It is said that this will give not only better but more rapid working conditions.

Production of Asbestos Increasing

The asbestos industry of the United States is in better condition now than ever before, especially as to the quantity and the grade produced, and the outlook is encouraging. Most of the asbestos used in the large asbestos factories of the United States comes from Canada, but the growing appreciation of the high quality American fiber, especially that from Arizona, is a welcome feature of the industry.

The total quantity of domestic asbestos sold in 1917, according to J. S. Diller, of the United States Geological Survey, Department of the Interior, was 1,683 short tons, valued at $506,056, an increase of about 13 per cent in both quantity and value over 1916. Most of the domestic asbestos comes from Arizona, where the proportion of crude spinning fiber to that of lower grades is much larger than in Canada, so that the average price of American fiber in 1917 was $301 a ton, whereas the average price of that in Canada was only about $50.

Some years ago the opinion was expressed that as the Arizona fiber contains less iron than that mined in Canada it is therefore better adapted to use for electrical insulation than the Canadian fiber. This opinion has lately been confirmed by analyses made by R. E. Zimmerman, of Pittsburgh, whose investigations also indicate that the harshness of certain parts of the Arizona asbestos is due to thin films of calcite among the fibers.

A small amount of spinning fiber was mined in Fremont County, Wyoming, from a contact deposit of remarkable interest.

The increased demands for asbestos due to the war have been met largely by increased imports from Canada. The imports of asbestos from South Africa and Italy have been largely cut off. The demand for imported asbestos for use in filters is being supplied by amphibole asbestos obtained from residual deposits of the crystalline rocks of Maryland.

Increase in Domestic Production of Talc and Soapstone

Talc is remarkable for its softness, slippery feel, and stability under a wide range of conditions, properties that make it useful for many purposes. Its soothing effect upon the skin makes it desirable for use as toilet powder, but it is most employed as a filler in paper. Much talc is used in the rubber trade, and the higher grades are employed in making electrical appliances and blanks for gas tips. The increased demands of the war have been met largely by increased domestic production. The total output in 1917, the maximum reached, was 198,613 tons, valued at $1,889,672, a gain

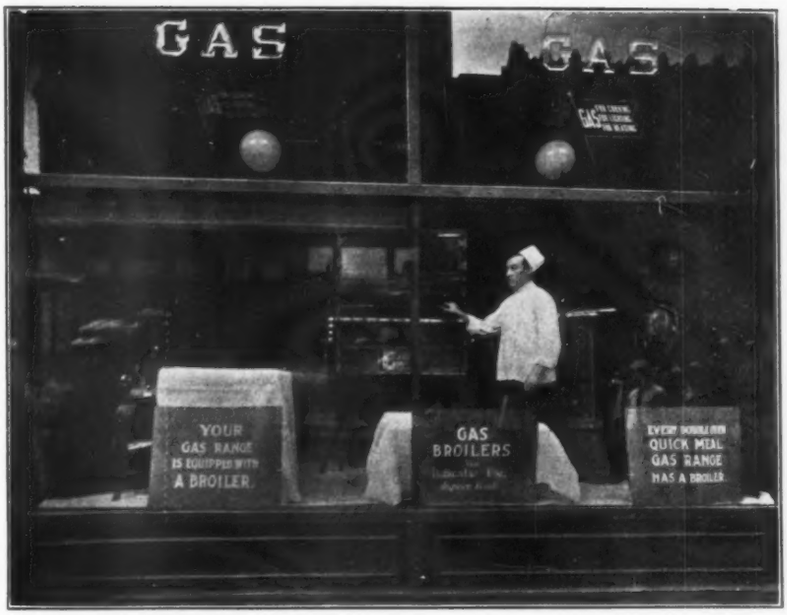
as compared with 1916 of 3 per cent in quantity and more than 7 per cent in value, according to figures compiled by J. S. Diller, of the United States Geological Survey, Department of the Interior. There were thirty-seven producers reporting to the Survey, of which seven were in California, six in Georgia, one each in Maryland, Massachusetts and New Jersey, four in New York, six in North Carolina, two in Pennsylvania, five in Vermont and four in Virginia.

Heretofore New York has always been the first State in quantity and value of rate produced, but in 1917 its output was less than that of Vermont, although on account of the fibrous character of the talc produced in New York and its consequent high value for making paper, the total value of the output in New York is still greater than that of any other talc-producing State.

The quantity of talc imported for consumption in 1917 was less than 10 per cent of the domestic output, but a larger proportion of it is of high grade. More than half the talc imported comes from Canada and is of a grade that commands a higher price than the talc obtained from the principal domestic sources.

In its output of soapstone, which is extensively used for laboratory table tops, hoods, sinks and laundry tubs, the United States leads the world, and most of it comes from Virginia.

The resources of both talc and soapstone in the United States are large and are sufficient to supply the demand for most grades for many years to come.



THE HUMAN BEING SUPPLIED THE DEFICIENCY THAT CONVERTED INEFFECTIVE DISPLAY INTO A WINNER

Human Action in Window Increases Effectiveness of Display

To succeed as a window dresser, study psychology.

Even a cursory glance through a standard textbook on psychology will lead to the conclusion that there is a very definite explanation for every little idiosyncracy of human nature. For one thing, a study of psychology should teach the gas man this: That while thousands of men and women will pass a window full of gas ranges without even giving it a glance, nearly every passer-by will stop for a moment at least if you put a little action into the window display, especially if another human being is doing the acting.

The designer of this window display at the office of the Laclede Gas Light Company, of St. Louis, apparently has learned the lesson. Some time ago the Food Administration launched a nation-wide campaign urging housewives to broil rather than fry meats so as to save fats for the American and Allied armies. Incidentally it may be said that, so far as the gas industry is concerned, there was strong need for such a campaign even before the necessity for fat conservation arose. For it has been the experience of most gas men that the average woman uses only two-thirds of her gas range, namely, the open burners and the bake oven. As a rule she either neglects the broiler entirely or uses it in rare cases. So long as the housewife does not utilize every part of her gas range she is not a 100 per cent gas consumer.

At any rate, in consonance with the Food Administration's campaign for the greater use of broilers, the Laclede company installed several models of gas ranges in a window facing Olive Street, the busiest thoroughfare in St. Louis. Signs also were placed prominently calling attention to the broilers. It must be confessed, however, that the display did not prove a howling success. Then the designer must have happened across a book on psychology, for soon thereafter a man attired as a chef was stationed in the window. He was instructed merely to open and close the broiler of a big gas range.

The good effects of this bit of action were instantaneous. Men, women and children crowded about the window the greater part of the day as if some wonderful demonstration were going on. In this way the attention of the women was held at least long enough for them to read and digest the signs in the window which they could hardly have read in passing.

In many cases women who had been the owners of gas ranges for years came into the office of the gas company, confessed that they had never used the broilers, and asked for instructions as to its use. At one stroke the window designer aroused a new interest in gas ranges, stimulated the use of gas and helped to a great extent the Food Administration's campaign for the conservation of fats.

Recovery of Sulphur

The *Journal of Industrial and Engineering Chemistry* states that it is the intention of the Government to commandeer supplies of crude sulphur in order to conserve the pure sulphur produced in Louisiana and Texas.

In this connection it should be recalled that the iron

oxide used for purifying coal gas collects large quantities of sulphur, amounting to about 200 tons per year for each 1,000,000 cu. ft. of gas per day produced. This sulphur can be recovered at a cost of from $6 to $10 per ton, depending upon the size of the plant, of a purity of 85 to 95 per cent, and in this impure state is immediately available for the manufacture of sulphuric acid.

Inasmuch as most large gas plants are, or will soon be, producing benzol in large quantities they provide the solvent necessary for recovering this sulphur, and thus provide an additional source of revenue for themselves as well as assuring material assistance to the country at this most pressing time.

It has been argued that the presence of large amounts of tar in the recovered sulphur are inimical to the proper working of sulphuric acid plants.

It has been demonstrated by trials on a large scale that a tar content of 15 per cent is not injurious, but it is stated by manufacturers of water gas that the oxide used for purifying this gas contains much more tar than that from coal gas plants, so that the recovered sulphur contains much more than the 15 per cent which is allowable.

This objection is by no means unsurmountable, as by suitable treatment the sulphur can be sublimed free from tar at a very low cost. Analyses of the purified product show from 99.5 to 99.9 per cent purity.

Coal of the Raton Mesa Region

The Raton Mesa region, which stretches across the boundary between Colorado and New Mexico, about 150 miles south of Denver, has recently been studied by the United States Geological Survey, Department of the Interior. This region includes the Trinidad coal field, in southern Colorado, and the Raton coal field, in New Mexico, which together include about 2,500 square miles, and form one of the most valuable coal-bearing areas in the Western States.

The coal-bearing rocks in this region have generally been assigned to what is called the Laramie formation, which is typically displayed near Denver and is supposed to have been formed during the Cretaceous period —the period in which the beds that are now exposed in the great chalk cliffs of England were laid down in the sea.

The name Laramie has been applied to many groups of coal-bearing rocks of different ages in the western United States in the mistaken belief that they were of the same age as the rocks that were first called Laramie, but it is now shown that some of these rocks are older than the Laramie beds and that others are younger.

The results of the investigations recently made in the Raton Mesa region are reported in the Geological Survey Professional Paper 101, by W. T. Lee and F. H. Knowlton, who have reached the conclusion that the coal-bearing rocks there are separable into two distinct formations that were laid down at different times, one in the Cretaceous and the other in the following geologic period—the Tertiary. After the lower or older formation had been deposited in shallow water along the shores of a Cretaceous sea the region was uplifted, and a long period of erosion followed, during which in some places a thickness of several thousand feet of these older rocks was swept away. This material was spread out, probably by streams, on an unevenly eroded surface, to form the new series of beds that constitute the upper formation. The line representing this period of erosion—a line indicating a surface of "unconformity," in the phrase of the geologist—may be seen in many of the cliffs of this region.

Mr. Knowlton's studies of the fossil plants, by which in large part it has been possible to determine that the two formations considered are of different ages, are of value not only to the geologist who may be interested in the stratigraphy of the country, but to the student of the world's vegetation and of the succession of plants that long ago grew in that region. Many of these plants are here described for the first time, and the report contains figures showing the form and peculiarities of many of the leaves of the plants, so far as these are revealed by the impressions that they left in the mud and sand of those long-vanished days.

Mr. Lee's studies are of value to the miner who is tracing a coal bed from place to place, for though the report is not prepared primarily for economic purposes it contains information that may materially assist him in this work.

The scientific report that may have the greatest economic value in particular areas to be exploited is not necessarily the one that deals with obvious practical requirements; it may be the one that lays down broad principles which will guide the miner in extending his explorations in proper directions. The coal-bearing rocks are the chief ones described in this paper. The coal beds of the lower formation contain high-grade coking bituminous coal; those of the upper formation contain coal of different quality, which is perhaps somewhat less valuable. During the period of erosion represented by the unconformity between the two groups of strata the lower beds were in some places removed. Before this fact was recognized much time and money were expended in vain in searching for valuable beds of coal in places where they had been eroded away.

The Soldier's Chances

Great as the danger and large as the losses in the aggregate, the individual soldier has plenty of chances of coming out of the war unscathed, or at least not badly injured.

Based on the mortality statistics of the Allied armies, a soldier's chances are as follows:

Twenty-nine chances of coming home to one chance of being killed.

Forty-nine chances of recovering from wounds to one chance of dying from them.

One chance in 500 of losing a limb.

Will live five years longer because of physical training, is freer from disease in the Army than in civil life, and has better medical care at the front than at home.

In other wars from ten to fifteen men died from disease to one from bullets; in this war one man dies from disease to every ten from bullets.

For those of our fighting men who do not escape scatheless, the Government under the soldier and sailor insurance law gives protection to the wounded and their dependents and to the families and dependents of those who make the supreme sacrifice for their country.

Loans to Our Allies

With recent loans of nearly $16,000,000 to Greece and $11,000,000 to Belgium, the aggregate loans made by the United States to our Allies now amount to practically $6,000,000,000.

Impossible to Close Down Utilities and Live in the Municipal Sense

Carl H. Mote Discusses Public Utilities in Wartime and Outlines the Work of the Indiana Commission in the Emergency—Utilities Cannot Buy Coal or Employ Labor Except at Current Prices With Money

Carl H. Mote, secretary of the Public Service Commission of Indiana, in an address to the Indiana Municipal League, meeting at Washington, Ind., last week, outlines the work of the war period of the Indiana commission, and touches on subjects of vital interest to all utilities. The war-time emergency attitude of the Indiana commission with relation to gas properties and the war-time problems of the commission as well as the companies are discussed.

The address of the secretary, prepared for the AMERICAN GAS ENGINEERING JOURNAL, follows:

This is a time of new values, of readjustments—personal, political, economic and institutional. The value of our dollars, our property, our services, our lives is radically changed by the war, and the man who does not face this fact squarely is indeed a foolish citizen.

You gentlemen who have come to attend this meeting of the Indiana Municipal League pay 50 per cent more for your railroad ticket than it cost you a year ago; you pay 50 per cent more to have your letters delivered and for post cards 100 per cent more. Butter, eggs, clothing, shoes, coal, advertising, automobiles—commodities that we consume or enjoy every day—cost infinitely more in the new conditions of life and industry. Our historical "billion-dollar Congress" repeats itself once a month instead of once a year. Income for personal service has no fixed importance, no assurance of constancy. The casualty lists impress us with the seriousness of each day's events—the tremendous potentiality of matters over which the individual has no control whatever. For the time being our personalities, our fortunes, our lives are merged in the common purpose of the nation—to win the great war and to win it as quickly as possible.

The subject assigned to the chairman of our commission, who could not be present to-day, is: "Public Utilities in War-time." The proposition, bearing in mind our common purpose in this time, is simple enough.

We have got to have water. Shut down the water utilities twenty-four hours and death stalks through our towns as certainly as it does on the battle front. Our sewers cease to run and our physical life is menaced from every angle.

Gas Plants Running or Hunger and Freezing

Our electric utilities must go on. Shut them down and the paths are made dark for the enemies of society, and, even worse, they are made dark for the modern communities and industries on whose payrolls our towns must be nourished. Close them down and we have industrial paralysis.

Our gas plants must go. Close them, and at least in the larger cities many will be hungry and be cold.

Our telephone utilities must go on. Close them down and our entire modern life is disorganized.

Our heating utilities must go on. Many of our homes and institutions are without other equipment for heating.

Above all other things, our transportation facilities must go on. Decry war as we will, it is a wonderful educator. I think already we have risen to a better understanding of the world, ourselves, our power, our limitations and our dependence on the forces of modern organized society. The war has brought to us the realization that no function of government is more vital than transportation. To-day, it is a function so vital that it can no more be left in private hands than the power to levy and collect taxes. At least, we realize that transportation cannot be conducted without money, and that to withhold necessary revenue only means that our armies cannot move, our industry perishes and we are undone.

War brings us to the realization that the vital forces of a city are not its schools, not fire protection, not police, not libraries, not streets, courts, health departments, jails or any of those other agencies which are accepted without question as instrumentalities to be maintained by general taxation. All of these institutions and functions could be suspended for days or weeks, or, in some cases, years, and still we would go on. But we cannot close down our public utilities and live municipally any more than we can permit our railroads to cease operation or wax inefficient.

These public utilities are a part of the Government, no matter whether they are privately or public owned, and President Wilson, Secretary McAdoo and John Skelton Williams, Controller of Currency, are right when they refer to them as vital forces that must be protected and carried through this war emergency.

Function of Public Service Commission in War-time

The function of the public service commission in war-times, then, is simple. It is to see that the utilities have funds to keep them operating and in a healthy condition, and credit which will permit them to obtain money under the most trying financial conditions that the modern world has ever known. Its duty is to see that the utility corporations do not capitalize the war to the disadvantage of those served. On the other hand, it is its duty to see that those served pay, under the conditions now obtaining, a fair price for the service rendered. If there are persons who proceed on the theory that everything is wrong, it is only fair to say also that the public service commission was not organized to make over society. These private corporations are in existence simply because society—that is, the people—have not

assumed all of the burdens and services incident to their municipal life. The functions discharged by privately owned corporations are just as vital as those which the modern city assumes as part of its governmental machinery and sustains through its tax rates. I do not pretend to make any argument here that society should municipalize or nationalize these functions, agencies or institutions, but I am pointing out that they exist because the modern State, or city, or town has not equipped itself to serve itself. Existing as such, these utilities must have additional money or else fail in their services. They cannot buy coal; they cannot employ labor; they cannot buy materials except at current prices and with money. You, yourselves, will not accept their payment of taxes except with money, and if this money is not provided, some things are likely to happen that will be almost as bad as the invasion by an armed enemy.

No Time for Utilities to Be Wrecked

This is no time for public utilities to be wrecked financially or physically. It is the very worst time for receiverships; and the one record that I think the present commission can take just pride in is the fact that in the State of Indiana, in the past year, not one public utility has gone into a receivership. On the other hand, I am able to say that no public utility of any kind has been able to capitalize the war to the disadvantage of the public who comprise their patrons. There have been no excessive profits authorized or collected in this State. Even in the face of the most trying financial situation public utilities have ever encountered we are still insisting on taking the water out of the public utilities. Even in the most trying times, when it is so difficult for utilities to get materials and repairs, we are insisting on service. Even in the most inopportune period of operation, when we are hammered as public utilities commissions have never been hammered before, we are trying to draw, for the first time in this country, a line between depreciation and maintenance, and to establish a rule for handling depreciation. We are trying to base rates on the theory of the law—the value of the property in use and useful in rendering service, and to ascertain as nearly as possible, with engineering and auditing staffs that by reason of war drafts are in continual process of reorganization, the fair value and the real financial condition of petitioners. We are not trying to beat the devil around the bush. When we find utilities in distress we are giving relief. The commission is proceeding on the theory that in granting the relief we are protecting the vital interests of the State and the community. On the other hand, when we insist on reasonable standards for service, on separation of maintenance and depreciation, on setting up depreciation reserves; when we turn down petitions for security issues that are not warranted by valuations made of the plants, or cut down the price at which utilities are sold or merged, or require that utilities shall amortize heavy discounts due to the heavy war cost of construction, we believe that we, in the long run, are serving the interests of the public utilities themselves.

Speaking before the Montgomery County Chamber of Commerce recently, I made the statement that rate making is a science and can be performed with more or less mathematical precision. The chairman of our commission, who was to have spoken here today, was disposed to disagree with my statement somewhat, and there is an element of truth in his argument that in war-times public utility regulation is not a science; that the foundations accepted a month or a year ago do not meet conditions to-day; that the war brings to public utility commissions just one imperative demand, and that is to hew close to the line of what is fair, what will sustain these vital functions of our modern life and maintain them and their services in healthy condition. We have our staffs of experts, but the imperative call on the commissions, while guided by their analyses in the application, in this time, of the best quality of good, old-fashioned horse sense. It is the only way we will get our communities and our public utilities through into the new world into which we are to emerge after the war. That, at all events, is what we are trying to do. That we may come nearer to this accomplishment we have divorced ourselves politically; we have cut every personal interest; and we are calling—yes, demanding—that these public utilities stay out of politics and that politicians cease to make them the football of politics.

Policy of Treating War Conditions as Temporary

I believe it is to the credit of the Indiana commission that almost immediately on its reorganization a year ago we accepted the fact that a period of readjustment had come. I believe that our commission is to be credited with originating the policy of treating war conditions as temporary—that we were the first to devise the policy of not disturbing existing rates, but, when necessity required, adding to them a surcharge to cover increased cost of operation. That is the policy; but there are instances in which it has been desirable to suspend temporarily the existing rates and put into effect—of course, temporarily—new rate schedules, subject to review at a definite time in the future. These devices have been adopted by practically every other commission in the country.

Every Petition Given Individual Consideration

By meeting the inevitable squarely and promptly one year ago, the Indiana commission has been able to give every petition individual consideration. Many other commissions delayed action or the adoption of a war policy, and the deluge that came on them was so great that it was necessary, in some instances, finally to adopt blank forms which are sent out for petitioners to fill, and their emergencies are passed on en masse, not by hearing but on the basis of these reports. It has been necessary for some commissions to waive what we consider the essential thing—appraisal of plants.

The result of our policy is that when, on May 1, 1918, we closed our first year after reorganization, our dockets were practically clear of old cases. Along with our theory that we had to face real conditions, and side by side with our other theory that we would weigh each petition on its individual merits, we fortunately had the foresight to adopt and practise the policy that a public utility commission

does not accomplish the purpose for which it was organized unless it is able to handle matters without delay.

I have a very definite notion why public utility regulation has been adopted by every State in the Union except one, and by the Federal Government as well. There are two reasons that stand out above all others—the railroads and some private utilities tried to, and practically did, usurp the people's government—first, in the State legislature, and, second, in the municipality, and the first and great ideal was to get the public utilities out of politics and likewise away from local political influence, and also out of the clutches of demagogues; second, and I am rather inclined to think this was the real cause, to escape the delays of the courts and the technical procedure of lawyers; in other words, to develop a short cut to substantial justice administered promptly and vigorously.

When the public service commission was reorganized a year ago we found 634 cases on the dockets. We started a house-cleaning. Many of the cases pending were two, three or four years old—some of them dating back to the days of the old railroad commission. The commission, as a whole, takes pride in saying to you that there is not an active case on its dockets that was pending on May 1, 1917, when the commission was reorganized. There are on the dockets eight cases then pending, but they are dead issues. For example, six of them are grade separation cases that cannot be taken care of during the war period: one case is in the courts and one other is involved by litigation in the courts.

Unusual Number of Cases Filed

During our war year ending May 1, 1918, we, of course, had an unusual number of cases filed. The normal filing is about 650 cases a year, and less than that number have been disposed of in any previous year. In our first year ending May 1, 1918, we disposed of 1,442 docketed formal cases, which left only 76 open cases on the first day of May. In other words, we had realized our ambition to put the commission on a war basis so that emergencies might be handled as they presented themselves. Of the 76 cases there are probably only 40 that might be called active cases. In addition to those, 682 informal docketed cases have been disposed of, raising the total to 2,124 docketed cases; and in this connection I might add that the cost of handling these cases was reduced to an average of approximately $48 per case. The wisdom and necessity of getting our dockets to a current basis is shown by the demands on the commission for the performance of a multitude of services—the endless confusion of new conditions in the transportation of coal over routes never traveled in Indiana, the endless complaints by telephone patrons and others regarding failure in service—results of the worst winter the State had known for thirty-four years, and the worst utility operating winter ever known in Indiana.

Until the Federal Fuel Administrator was appointed in October the commission handled all the coal problems in the State; and until very recently, when the Federal Government began to assume direction of transportation of coal, the commission was in complete direction of this problem in Indiana, and we are glad to report that even the operators who were so outraged in regard to our activities in conducting coal inquiries a year ago show a production of 5,000,000 tons for Indiana, a gain of 25 per cent, while the country showed an increase of only 8.3 per cent. Of course, you know that production is measured by the number of cars provided, set under the tipple and moved. We had to have the cars to meet new standards of service necessary to meet war conditions.

We have already established, as part of our working facilities, the nucleus of a public utility library which will be available to the public and which, we hope, the public will use widely. Despite our liberal system of giving notice to the public of petitions pending before our commission, it has been difficult to get an adequate representation present at our hearings. We expect, however, to perfect our system so far as possible, and we invite the largest measure of co-operation, of suggestions and criticisms. We are trying to meet all problems squarely and to do what we were created to do under the most unfavorable conditions the State has ever known.

Within the past six weeks many public utilities which came before our commission one year ago asking for increased rates to meet increased operating expenses have returned to our commission for a renewal of the surcharge granted then. We have insisted in every case that they prove beyond the question of a doubt that difficult operating conditions have been met in accordance with the spirit of the times; that they show to our commission that they have given proper consideration to the reduction in operating expenses, to practical economies which would not impair, beyond a reasonable degree, the standard of service furnished.

Insisting Upon Utilities Playing Their Part

In an application of the electric utilities furnishing light and power to the people of Indianapolis the commission insisted that the companies eliminate every unnecessary expense, or in the absence of any action on the part of companies they were told frankly that their rates for the ensuing year would be based upon an allowance for operation, with unnecessary duplications wholly eliminated. The commission has said practically the same thing to the Indianapolis Water Company.

It may be said that it is not our function to establish rigid standards of this character, but I do not believe such an argument is tenable. We expect and we are going to insist that the public utilities indicate definitely what economies they have adopted to meet the rising costs of operation. Exorbitant salaries, money paid for little or no service, duplication of effort where competing conditions prevail, expenditures of money for which no direct return is apparent might be tolerated in peace-times, but they will not be tolerated to-day; at least, not by the Public Service Commission of Indiana.

Petitioners before our commission will be required to make a proper showing if they are to expect favorable consideration at our hands. It is very necessary to-day to practise the largest measure of conservation of men, material and money in order that our surplus may be enhanced for the winning of the

(*Continued on page* 14)

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CONTENTS

Applying Gas Burners to Existing Appliances Using Other Fuels. By Gilbert C. Shadwell 1

Pipe Line Laid Under 30-Ft. Depth Estuary Gets San Francisco Company Its Biggest Gas Consumer 5

Impossible to Close Down Utilities and Live in the Municipal Sense..... 9

Editorials 12

How the Gas Companies Are Helping the Nation 15

News of the Gas Industry..... 16

Societies and Associations..... 24

Personal Notes—Page 15 of Advertising Section

Construction Notes—Page 16 of Advertising Section

By-Products of Inferior Coal

None of us have to be convinced of the economic wastes represented in inferior coal. We are aware that the crux of the shortage of supplies is in transportation capacity, and that the less dirty coal shipped, the greater would be the quantity of real coal available. We know the effects of inferior coal on gas making and gas-making equipment. And recently we have encountered a case where the effects went beyond the manufacturing plant and into the consumers' premises in a city of considerable size. The company living from hand to mouth in the matter of coal supplies, in desperation made use of a load of coal it knew was of bad quality for gas make. Physically irritating gas of such character as to give the local press the inspiration to style the incident a "gas attack" was set loose in consumers' dwellings, giving rise to much discomfort and complaint, and deciding the company to let the supply run out in the future rather than endeavor to maintain it by such means.

The National Fuel Administration, in a letter written the National Committee on Gas and Electric Service, has asked gas companies to report any shipments of improperly prepared or relatively inferior bituminous coal received by them. Manifestly it is each and every gas company's duty to do so.

A Real Means of Getting Rid of the Open Flame Burner

In the opinion of the American Gas Engineering Journal, if the average run of regulatory commissioners would devote half as much thought to weaning consumers away from the open-flame burner, which is admittedly wasteful even from the consumer's viewpoint, and less to seeing that the interests of the users of such burners are amply safeguarded in setting heat unit standards, a great good would be done the nation at this particular time, and an ultimate saving of considerable magnitude in the public's gas bill would be effected.

Regulatory commissions will, within the next few months, readjust upwards a large number of gas rates. Why not deal with the subject rationally? Take definitely the stand that there is no such a thing as gas lighting except insofar as it is obtained through the agency of the mantle lamp; then require that the gas company supply such lamps and maintain them in good and efficient condition, making a sufficient allowance on determining the rate set to enable it to do so.

There would be ample warrant for such an attitude. Proof is not required of the relative economy of open-flame burners and mantle lamps. The published findings of the U. S. Bureau of Standards provide ample reason for considering maintenance essential to efficient gas lighting.

At a time when there is talk of the National Government cutting the gas and electric power use of the individual citizen in half, the continuance of the open-flame burner is an abomination.

We have tried to follow out the preachments of Mr. Hoover, as to food, to the full extent. We are quite certain that if we had cut our potato consumption in half at some sacrifice, then saw a neighbor wasting half of his potatoes in peeling, and had Mr. Hoover's spokesman excuse him on the ground that to do otherwise he would have to provide himself with a new paring knife, we would be inclined to backslide. By the same reasoning we are inclined to believe there will be small enthusiasm shown towards economizing on gas at a sacrifice if the general public is aware that this flagrant waste through open-flame burners goes on unchecked.

In]Partnership with the Government

It has been indicated that, in addition to conserving on food and other essentials, the Government will ask the people of the country to conserve gas and electricity even to the point of self-sacrifice. In this effort it will have been anticipated by more than a year by the gas companies themselves.

There is no lack of a market for all the gas we can make. The trouble recently has been too good a market.

Unfortunately, gas plants are not sufficiently elastic to stretch out at will to meet especially abnormal and continued demands. Ordinarily, they could be extended sufficiently to meet new conditions within a reasonably short time. But obstacles stand in the way at the present time that the gas man cannot control.

Let us assume that he would like to double his capacity. First, he must have money. His rates are not bringing him sufficient returns even to operate without a loss. Manifestly he cannot finance even small extensions out of current income. Nor can he borrow the money. There are too many investments equally secure, from which the public can get a good return on its money, to make it possible for a utility operating at ruinous rates to readily attract new capital. The gas man does not, in the general sense, set his own rates. Their control is in other hands, and that control has not shown itself always to be as broad visioned as it should. In fact, it would not seem that some utility commissions realize there even is a war or that prices were any different than they were a decade ago. Then there is the question of getting the equipment. Again there has been a disturbance. Some manufacturers still are able to promise delivery at a definite time. Others will not, nor cannot, make any promises. Once these obstacles are overcome, and the new equipment installed, there remains a question as to how fully it can be utilized. Effective and efficient efforts have been made to insure gas companies of their coal and oil needs. Nevertheless, the problem has not been solved even as yet.

So, manifestly, there is need of cutting down on gas consumption, not in the aggregate, let us make clear, but for the individual use.

It would be nullifying in effect, the effort at fuel conservation, were we to influence any new customer who wished to change from coal to gas for cooking not to do so, and so on. But if we can get the consumer to utilize it for lighting, say, only by means of the gas mantle; to go to bed earlier and to pull down the flame when he leaves the room; if we can get the cook to cut down the gas necessary for her meals by one-fourth; if we can get the family that heats by gas to maintain a temperature on the basis of health, rather than on the basis of as nearly baking itself as is possible, when inside in cold weather; then, indeed, we perform a patriotic as well as a public service—even in peace times—and release gas that has a value to-day much beyond its cost for other vital uses.

Use of Gas in Building the Skyscrapers

Individually the gas-fired rivet heating furnace is a relatively small industrial appliance. But if every rivet heated for any purpose in this country in any year was heated by gas our rivet-heating load might well rival our other major loads in magnitude.

At the present time rivet-heating furnaces are attracting a considerable amount of attention to gas. The shipbuilding program is of intense interest to the whole country. And the shipbuilding program is essentially dependent on riveting, and, incidentally, on rivet heating.

The speed capacity of the coke-fired rivet heater is limited. That of the gas-fired heater is so much beyond the requirements of the speediest crew as to warrant its being styled unlimited.

The gas-fired furnace does the work better, soaks the heat into the metal evenly all the way through, a thing the coke-heated furnace does not do.

The gas-fired furnace does not damage the rivet. The coke-fired heater frequently does.

There were millions of rivets being driven before the steel shipbuilding industry in this country was anything beyond a rather insignificant factor in our national life. Though there is no reason why the gas-fired furnace should be any more adapted to the local features of their work than to the features of general steel erection, the gas-fired rivet heating furnace had to wait for the shipbuilders to bring it into prominence and emphasize its overwhelming merits.

Under existing conditions any suggestions as to a market for the gas-fired rivet heater, other than in the shipyards, can evoke little more than academic interest. There is manifest a rapidly increasing trend towards the gas-fired heater on the part of the shipbuilders.

They alone, will supply a demand that will tax, and overtax, the ability of present manufacturers to meet. But once the shipyard demand is met, the gas-fired rivet heater should not be permitted to lapse into obscurity. It has a place on the skyscrapers as well as on the shipway.

There should be no insurmountable transmission difficulties met with in getting the gas to follow the work on the skyscraper skeleton erection, and the volume of business after the war will be enormous.

Impossible to Close Down Utilities and Live in the Municipal Sense

(*Continued from page* 11)

war. An increase in rates was denied the Indiana Public Service Company recently for the very convincing reason that the evidence disclosed an inexcusable wasting of gas. It showed that in 1915 the company wasted 28 per cent of its entire output; in 1916, 29 per cent; in 1917, 38 per cent; and for the year ending December 31, 1917, 45 per cent of its total output. Operating conditions of this character are wholly indefensible and will not be approved by our commission, directly or indirectly.

The Matter of Extensions

The commission does not look with favor upon extensions which involve any considerable volume of material or labor or money. We did, however, practically direct a large extension of the facilities of the Citizens Gas Company because it is necessary to the domestic comfort of our people. This is the only extension of any consequence authorized by the commission during the past year. Unnecessary extensions will prove an unwarranted drain upon the material, supply and man-power of the nation. Prices of material and labor are so abnormally high to-day that any extensions made now will be capitalized against the users of the service and the increased costs of construction will be reflected directly in rates for all time to come.

Money which the public utilities were able to borrow for 4½ and 5 per cent is now costing 6, 7 and 8 per cent. Increased interest rates are also reflected directly in the cost of any public utility service. In the Citizens Gas case the commission authorized a temporary increase in rates for gas, the added revenue to be set apart to amortize the increased cost of the coke ovens to be built at this time.

The credit of this company is probably unsurpassed in the public utility field in the State; and while we don't want to say that the company itself did everything possible to get money at the very lowest rate, it is a fact that the obligations issued to cover this new construction, and bearing 7 per cent, were sold at a discount of more than 10 per cent.

We have been disturbed, I may say frankly, by rising interest rates and increasing discounts at which it was necessary for public utilities to market their securities. But we connot control financial conditions which prevail throughout the country; in fact, the entire world. We have done the next best thing. We have required these utilities to amortize any discount at which securities were sold out of the net revenue. In doing this we are protecting the public, as we believe, from the overcapitalization of public utility properties. This is a waterproof policy, but we believe in the long run it is the soundest finance for public utilities themselves to practice.

Maintaining Service Standards

While operating conditions have been extremely difficult, we have sought constantly to maintain service standards, and in many instances to improve service furnished. We have denied rate increases because of poor service, and in at least one instance an increased rate was authorized to take effect when the service had been improved to conform to a standard which we would and could approve. The Union Traction Company of Indiana was denied an increased rate of fare between Indianapolis and Broad Ripple on the ground that the service is wholly inadequate. The Interstate Public Service Company was denied a surcharge on gas furnished at Franklin and Shelbyville because the gas is below a reasonable standard. The petitioner was advised that if the service were improved we might be willing to entertain another application. The Ohio Electric Railway Company was denied an increased rate of fare between Fort Wayne and points east because of inadequate service. The Monroeville Home Telephone Company was grantd an increased rate to take effect when the lines and property had been repaired and put in good operating condition, and after repairs and improvements had been inspected and approved by the commission's engineering staff. The orders in these cases reveal our policy in the present and the future.

Municipally Owned Plants

In the field of municipally owned and operated utilities the commission has had no primrose paths to follow. The number of such utilities which have asked relief is proportionately equal to the number of privately owned and operated utilities. The problem of municipally owned and operated utilities is generally more difficult because of the careless bookkeeping, failure to make proper charges against the municipality for public lighting and fire protection, or to make adequate payments to the municipality for administration and other expenses of operation.

The Fort Wayne Municipal Light Plant has been managed by the board of works, but no charges are made for the management. The municipal light office occupies a $15,000 building owned by the city, but no rent is paid. The light and water plant of the city of Veedersburg has been furnishing fire protection and public lighting to the entire city, but the plant proper has received no credit for this service. The same was found to be true of Oxford. As a result, the entire burden of public lighting and fire protection falls on the patrons of the light and water plant, and non-consumers, who likewise enjoy the service, escape the burden of contributing to its maintenance. The commission is correcting these glaring errors as fast as they are disclosed.

While the commission has been criticized to some extent for authorizing rate increases, we likewise have been criticized bitterly by the telephone interests, especially, for denying increases. *Telephony*, the organ of

the telephone interests, has called us a Bolshevik commission because we denied the telephone companies at Noblesville and Greencastle an increased rate. All of which leads us to believe we must be steering a pretty fair course in the direction of a common-sense adjudication of our problems. Those who are disposed to question the propriety of rate increases authorized by our commission should reflect what would have happened during this abnormal period had there been no commission—no body organized to stand between the utilities and the public. Regardless of franchises, rate increases would have been made. Either that, or the utilities would have ceased to operate, which is unthinkable. What the measure of the increase would have been would have depended upon local caprice or culpability, or both. There could have been no checking up of balance sheets and operating statements, because there would have been no agency capable of performing these functions. In place of providing themselves with just enough revenue to meet increased expenses, you would have had what the utilities first proposed—blanket increases for every utility, those which needed an increase and those which did not need it. But for the commission, who was there to say that this light company needed 30 per cent, this company 17 per cent and this company nothing; but for the commission, who was there to readjust technical and intricate rate schedules so that the increased revenue would be collected from those who ought to pay it—from the larger users of the product who, themselves, are beneficiaries of war conditions.

The public service commission is absolutely necessary so long as we have the privately owned and operated utility, and if we need a regulatory body now, the need will be equally great after the war. Rate structures will have to be readjusted to conform with changed prices. The readjustment of prices will be gradual, and so should the changes in public utility rates.

How the Gas Companies Are Helping the Nation

Employee of Tacoma Gas Company Killed in Action

D. Gordon Michie, of Tacoma, Wash., and a member of the Canadian Expeditionary Forces, has been killed in action, according to information received by Elmer Dover, president of the Tacoma Gas Company. Mr. Michie was a clerk in the Tacoma Gas Company from 1912 to 1918. He is the first of the men represented by fifteen stars on the Tacoma Gas Company service flag to be killed or wounded. The news of his death came from the Snohomish branch, where Mr. Michie worked after leaving Tacoma. He enlisted from there shortly before the United States declared war. Mr. Michie was twenty-eight years old, and had a wide circle of friends in Tacoma. He was born in Scotland, coming to the United States when a small boy.

The Consolidated Gas Company employees at the Roxbury, Mass., station, flew a service flag at 11 a. m., June 29, in honor of the fifteen men who have answered the call to the colors from that station. William H. O'Brien, of the public service commission, was the speaker.

The Kings County Lighting Company, of Brooklyn, N. Y., has added six stars to its service flag, making a total of forty-one men from that company who have responded to the call of the United States. Ralph Elsman, general manager, has announced that his company is represented in every branch of the service, including a yeowoman in the Navy. The additional stars will be dedicated within a short time.

J. J. Gillogly, recently in the employ of the Iroquois Natural Gas Company, Buffalo, N. Y., is now with the American Expeditionary Force in France.

Fred Fulghum, gas fitter for the Winfield Natural Gas Company, Winfield, Kan., went to Lawrence, Kan., recently to train at the State University for the radio section of the Signal Corps. He was given a wrist watch by the employees of the company.

Wilbur Plagg, of the new business department of the Arkansas Valley Gas Company, Arkansas City, Kan., has been called to the National Army at Camp Funston.

Hugh Harrington, safety inspector of the Empire Gas & Fuel Company, joined the National Army June 15. The men gathered at his home the night before he went to give him a watch and kit.

E. C. Arnold, formerly in the combustion department of the Denver Gas & Electric Light Company, Denver, Col., is a first lieutenant in the Signal Corps and acting as instructor in radio mechanics. He attended the Second Officers' Training Camp at Fort Sheridan, Ill.

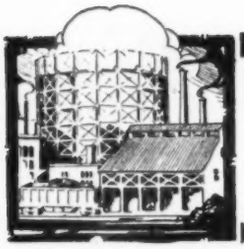
Sergeant C. N. Dobbins, formerly with the Empire companies in Bartlesville and more recently with the Dominion Natural Gas Company, is in the Fourth Officers' Training Camp at Camp Jackson, S. C.

William Gloeckler, of Utica, N. Y., who left June 21 for the Great Lakes Training School, was tendered a banquet at Marrone's Hotel, June 22, by about thirty of his fellow employees of the Utica Gas & Electric Company. The best wishes of his many friends will follow him on his journey to enter the service in the United States Navy.

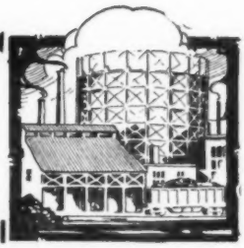
G. Herbert Woodall, formerly general manager of the Brooklyn Borough Gas Company, Brooklyn, N. Y., is a member of the Machine Gun Company of the 23rd Infantry, New York Guard.

J. Harry Todd, formerly employed as a bookkeeper in the commercial office of the Public Service Gas Company, Camden, N. J., is now a sergeant, Supply Company, 109th Infantry, with the American Expeditionary Forces in France.

H. K. Gronlun, of the engineering department of H. M. Byllesby & Company, Chicago, has entered the United States Army and is now located at Camp Grant.



NEWS OF THE GAS INDUSTRY



Five Massachusetts Gas Companies Fail to Earn Expenses

The annual report of the Massachusetts Gas Commission shows that of the sixty-three gas companies only five failed to earn expenses, compared with three in the last year's report. This success might be attributed to the raising of rates in war times, but the fact is that four of the companies lowered their rates during the year. The average price paid by the consumers for coal gas throughout the past year is calculated to be $0.858. This average is a little lower than that of last year.

Permission to Issue Bonds Asked by Indiana Company

The Central Indiana Lighting Company recently filed a petition with the public service commission for authority to issue $10,000 par of first and refunding mortgage 3 per cent sinking fund gold bonds.

Flood Cuts Off Supply of Gas at El Reno and Yukon

El Reno and Yukon, Okla., were without gas June 6, as the result of the washing out by the overflowing of the North Canadian River of the supply pipe just east of Yukon. Repairmen were rushed to the scene of the break by the Oklahoma Gas & Electric Company.

As the break occurred under water and the river was at a high stage, it made the work of repairing doubly hard.

Fuel Administration Shall Welcome Complaints on Inferior Coal Received

Up to the present time the outlook for sufficient steam supply for next winter was not bright, owing to the quality of coal that has been received during the past few months, but the following letter, dated June 26, received by the National Gas & Electric Service promises to be of great importance to gas companies:

"The United States Fuel Administration will be pleased to receive complaints from public utility companies as to improperly prepared or relatively inferior bituminous coal received at their plants by direct barge or railroad shipments.

"In making complaints, state the name of the producing company and the mine at which shipment originated; also give name or number of barges and the initials and numbers of cars.

"All communications relative to the above should be addressed to Chas. M. Means, Manager, Inspection Division, U. S. Fuel Administration, Washington, D. C.

"When these reports are received an inspector will be sent to the mine and investigation made, and such action taken as each case seems to merit. Such reports will materially assist the Fuel Administration in locating mines that are not producing coal of proper commercial value, and it is hoped that a very material improvement in the situation will result.

Very truly yours,

"U. S. FUEL ADMINISTRATION,
"(Signed) CHARLES M. MEANS,
Mgr., Inspection Division."

Higher Rate Asked for McAlester by Two Companies

The McAlester Gas & Coke Company and the Choctaw Natural Gas Company recently filed an application before the State corporation commission asking an increase in gas rates at McAlester, Okla. The present rate is 30 cents with a 5 per cent discount, and the proposed new rate is 35 cents with a 5 per cent discount. The companies are losing money and need the increase to carry on their business, is the plea made in the application.

Boston Consolidated Output

The Boston Consolidated Gas Company produced 462,560,000 cu. ft. of gas in June, or 5.3 per cent more than it did during the corresponding month last year. The May output was 495,446,000 cu. ft.

Readjustment of Industries for War Work

President of American Society of Mechanical Engineers Takes Important Step in Securing Co-operation of Society With War Industries Board

For the purpose of developing new industrial resources to meet the war demands of the Government, and quickly to disclose additional means of increasing production, the War Industries Board has just established a Resource and Conversion Section. Charles A. Otis, of Cleveland, Ohio, former president of the Cleveland Chamber of Commerce and a member of the board of directors of the Chamber of Commerce of the United States, has been appointed chief of this section.

To carry out the plans of the War Industries Board, it has been decided to divide the country into twenty regional groups and to organize each region through the commercial organizations within the region.

In each of these regions all types of industry represented in the membership of the business organizations and in addition all industries which may not be a part of such membership will be invited to co-operate.

The purpose of this regional system is immediately to make a careful survey of every section of the country to determine what industries not now doing war work may be utilized for such work, and also to ascertain what industries already engaged on work for the Government are able to take on additional contracts or increase their production of munitions and war supplies.

Utilizing local sections organization of the American Society of Mechanical Engineers, President Main has appointed the following members to act as its representatives on each of the regional committees of the Resources and Conversion Section of the War Industries Board:

Bridgeport, Conn.....Harry E. Harris
New York City.....G. K. Parsons
Philadelphia, Pa.....Lewis F. Moody

Pittsburgh, Pa.....J. M. Graves
Rochester, N. Y.....F. W. Lovejoy
Cleveland, Ohio.....F. H. Vose
Detroit, Mich.....G. W. Bissell
Chicago, Ill.....A. D. Bailey
Cincinnati, Ohio.....Fred A. Geier
Baltimore, Md.....William W. Varney
Atlanta, Ga.....Oscar Elsas
Birmingham, Ala.....J. H. Klinck
Kansas City, Mo.....J. L. Harrington
St. Louis, Mo.....R. L. Radcliffe
Milwaukee, Wis.....W. M. White
Dallas, Tex.....A. C. Scott
San Francisco, Cal.....B. F. Raber
Seattle, Wash.....R. M. Dyer
Boston, Mass.....A. C. Ashton
St. Paul, Minn.....Paul Doty

The president has also created a national committee of the Society on Readjustment of Industries for War Work. George K. Parsons, the chairman of the committee on this same subject, who was appointed as the outcome of the recent successful meeting of the New York Section on Non-essential Industries, is chairman of the main committee. The other members of the national committee are F. A. Scheffler and Erik V. Oberg.

The action of President Main is in accordance with the action by the council at its meeting in Worcester, of carrying out the recommendations of the committee on readjustment of industries for war work, and the president chooses the above method as the best means of rendering effective service by offering the organization to an agency already established for carrying on the work.

Concord Gas Rate Increased

The public service commission has given the Concord (N. H.) Light & Power Company authority to increase its rates for gas, giving as the reason the "very abnormal and constantly increasing cost of coal."

The meter rates will be $1.30 per 1,000 cu. ft. for the first 10,000 ft. consumed per month; $1.20 for the next 20,000 ft.; $1.05 for the next 20,000, and 85 cents in excess of 50,000 ft. The service charge will be 25 cents for two, three and five light meters, 30 cents for ten-light meters, 35 cents for twenty-light meters, 40 cents for thirty-light meters, 50 cents for forty-five-light meters, 55 cents for fifty-light meters, 60 cents for sixty-light meters, 75 cents for eighty-light meters, 80 cents for 100-light meters, $1.10 for 150-light meters, $1.40 for 200-light meters and $1.70 for 250-light meters.

Clog in an Oil Feeding Pipe Causes Much Terror Among St. Louis Consumers

The German terrorization propaganda has even invaded the gas industry in America, as evidenced by events in St. Louis County last week, when a falling off in the pressure of gas supplied by the St. Louis County Gas Company was followed immediately by a fast traveling rumor that the mains had been tapped by the Kaiser's agents and a poison gas injected.

The rumors caused more or less of a panicky feeling among women when they noticed in addition to the low pressure a rather peculiar odor coming from the gas pipies. Hundreds of consumers telephoned the office of the gas company to inquire concerning the "German plot," only to be told, however, that the trouble was due not to the apostles of Kultur, but to an accident at the gas plant. A clog in an oil-feeding pipe was the cause both of the low pressure and the peculiar odor given the gas.

Empire Company Allowed Increased Rate for Indefinite Period

Concurring with Commissioner Irvine in his findings in the matter of the rate increase sought by the Empire Gas & Electric Company, the public service commission has gone on record as recognizing that public utility corporations should be given some degree of relief during the war period so that they may be able to carry on business.

The Empire Gas & Electric Company serves the communities of Auburn, Geneva, Seneca Falls, Clyde, Waterloo, Newark and Lyons. The opinion as adopted by the commission states that it is evident that if public service corporations are to be expected to carry on their business in an efficient and satisfactory manner the commission must grant them such rates as will secure sufficient revenue for that purpose.

The rates fixed are effective only for a period of six months or as long thereafter as the commission may deem necessary. The rates granted comprise a minimum charge of 50 cents per month. The maximum charge is $1.50 per 1,000 cu. ft. of gas, with a sliding scale for larger consumption.

In closing Commissioner Irvine says:

"It is estimated that these rates will afford such an increase in revenue as should ensure the payment of interest on the funded debt and dividends upon the preferred stock. They should also provide a moderate surplus available for dividends on the common stock. They certainly will not yield as large a return as might reasonably be expected in normal times. We think, however, that the public service corporations must and do expect to submit to their share of the common sacrifice and that neither the appeal of President Wilson nor the ruling of the War Finance Corporation had in view the maintenance in all cases of normal profits."

Consumers Asked to Restrict Gas Consumption, If Necessary, During Coming Winter

Circulars notifying the patrons of the Citizens Gas & Electric Company, Elyria, Ohio, that no family may be allowed to consume more than 35,000 ft. in a single month this winter are being mailed out by the company.

The new orders were given out by the State Fuel Administration, and come in line with those given out by these officials to conserve all kinds of fuel during the winter months.

This order will not be put in force until it appears absolutely necessary, and factory and some other classes of consumers have been disconnected to conserve the supply.

Niagara Company Files Amended Rules and Regulations on Gas Tariff Schedules

The Niagara (N. Y.) Light, Heat & Power Company has filed with the Public Service Commission, Second District, amended rules and regulations of its gas tariff schedules, proposed to become effective in Tonawanda and North Tonawanda on Aug. 1. The charge proposed is as follows: "A charge of $20 will be made for gas service where length of same does not require over 40 ft. of pipe inside the property line. For each additional foot of pipe over 40 ft. a charge of 40 cents for underground and 30 cents for exposed piping wil be made."

Reduction in Candle Power Standard for Minneapolis Allowed

Under terms of an amendment to the contractual ordinance between the city of Minneapolis, Minn., and the Minneapolis Gas Light Company, which was presented to the council, a reduction in candle-power from 15 to 10 is agreed to, but no change is made in the present standard of heat units.

The amendment was sanctioned by the council special gas committee and recommended to the council for adoption.

The council is expected to pass the amendment to-morrow. It waives a reduction in the candle-power of gas for the period of the war or for as long as the company is manufacturing toluol for the Government to be used in high explosives. The heating standard is maintained at 600 B.t.u.

Increase Granted at Burlington for 6 Months

Permission has been granted the Citizens Gas Company, of Burlington, Wis., by the State railroad commission to increase their rates from $1.60 to $1.90 per 1,000, with a discount of 10 cents for prompt payment of bills. The company has also been granted a minimum rate of 50 cents per month. The new rates went into effect on June 1 and were granted in answer to a petition filed by the company with the commission asking for authority to increase their rates on account of the advanced cost in coal, coke, oil, etc.

The increase in rates has been granted the company for the next six months and are subject to revision if necessary at the end of that time.

Gas Rate Increase at Stockton

The Railroad Commission of California has granted the Western States Gas & Electric Company authority to increase rates for gas at Stockton, Cal., 10 cents per 1,000 cu. ft., effective June 28, making the price $1.10, with 5 per cent discount when paid before the tenth of the month.

Dismiss Rate Increase Cases in New Jersey

The New Jersey Board of Public Utility Commissioners dismissed an application of the Atlantic City Gas Company to increase its rates from $1 to $1.30 per 1,000 ft. A petition of the Atlantic City Suburban Gas & Fuel Company for an increase in rate was also dismissed. The rate now charged is $1.40 per 1,000 ft. The company wanted to increase it to $1.90.

Capital Stock of Lone Star Company Increased

The Lone Star Gas Company has increased its capital stock from $5,000,000 to $6,000,000. The company supplies natural gas in Texas, and has recently gone into an extended drilling campaign. Stockholders will be permitted to subscribe to the new stock on a pro rata basis at par.

A resolution passed by the directors enables the company to produce and market oil as well as gas.

Spokane Rates Advanced

Gas rates in Spokane, Wash., will be advanced approximately 20 per cent under a recent decision entered by the State public service commission at Olympia on the application of the Spokane Falls Gas Light Company for an increase. The decision was based on a hearing held in Spokane April 10, when a new valuation of the property was made and testimony taken as to the company's earnings.

The new schedule adopted by the public service commission provides for a step rate for the first 1,000 ft., with an advance for each 100 ft. The rate adopted is practically that suggested to the commission by Expert Henry I. Lea for the gas company and afterward urged upon the commission by the gas company as its revised schedule. Following is the schedule:

100 cu. ft.	$0.85
200 cu. ft.	0.95
300 cu. ft.	1.05
400 cu. ft.	1.15
500 cu. ft.	1.25
600 cu. ft.	1.35
700 cu. ft.	1.45
800 cu. ft.	1.55
900 cu. ft.	1.65
1,000 cu. ft.	1.70
Next 1,000 cu. ft.	1.55
Next 3,000 cu. ft.	1.45
Next 5,000 cu. ft.	1.35
Next 5,000 cu. ft.	1.30
Next 20,000 cu. ft.	1.20
Next 15,000 cu. ft.	1.00
Over 50,000 cu. ft.	0.80

The rates now in force, adopted by the public service commission and accepted by the company in May, 1913, are:

Not to exceed $1.40 per 1,000 for the first 2,000 used per month.

Not to exceed $1.30 per 1,000 for the next 3,000.

Not to exceed $1.20 per 1,000 for the next 5,000.

Not to exceed $1.10 per 1,000 for the next 5,000.

Not to exceed $1 per 1,000 for all over 15,000.

Readiness-to-Serve Charge Denied Tuckerton Company

The State board of public utility commissioners recently denied an application of the Tuckerton (N. J.) Gas Company, which secures its supply from the Ocean County Gas Company, for the right to add a readiness-to-serve charge of 25 cents per month to the rate now charged consumers.

The company stated that a deficit of $285.34 is shown in revenues owing to abnormal conditions of 1917 over 1916.

Seek to Increase Rate for Gas in Needles

The Needles (Cal.) Gas & Electric Company has made application to the State railroad commission for authority to increase its gas rates.

Wholesale Rate Cancelled

The Westchester Lighting Company has filed with the New York Public Service Commission, Second District, a change in its gas tariff schedule affecting Yonkers, New Rochelle, Mount Vernon, Larchmont, Pelham, Pelham Manor, North Pelham, Bronxville and Tuchahoe, and the towns of Pelham and East Chester. The change, effective in July, cancels the wholesale rate of 90 cents per 1,000 cu. ft. for gas.

The wholesale rate heretofore effective called for such a large consumption per month that only two customers of the company will be affected by the withdrawal of the rate, and the statement is made that the change was made necessary by the greatly increased cost of all ingredients entering into the production of gas.

THE MUSKOGEE GAS & ELECTRIC COMPANY declared the regular quarterly dividend of 1¾ per cent on the preferred stock of the company, payable June 15 to stockholders of record May 31.

Application for Increase Filed at Galena

The Gas Light Company, of Galena, Ill., notified the public that it had filed with the State Public Utilities Commission of Illinois schedules which will change the rates for gas in Galena as follows:

Minimum charge, $1.50 per month. First 1,000 cu. ft. per month, $2 per 1,000; next 1,000 cu. ft., $1.75 per 1,000; all in excess of 2,000 cu. ft., $1.50 per 1,000.

A discount of 10 cents per 1,000 cu. ft. to be allowed on all bills paid on or before the tenth of the month, but no discount to be allowed that would make the minimum charge less than $1.50.

Increase Announced by Crescent Company

An increase of rates has been announced by the Crescent Oil & Gas Company, Monaca, Pa., in a statement filed with the public service commission.

The tariff for gas delivered to domestic consumers has been increased from 30 cents net to 35 cents net for each 1,000 cu. ft., subject to a minimum charge each month of 3,000 cu. ft. in Colona, South Heights, Wireton and Glenwillard. The new schedule for factories follows: Rate for first 1,000,000 cu. ft. each month, increased from 30 cents net to 35 cents net for each 1,000 cu. ft.; rate for 2,000,000 cu. ft., increased from 25 cents to 30 cents net. The rate for single burner street lights has been increased from $6 to $8 a year, and the rate for two-burner street lights has been increased from $9 to $12 a year.

Western States Gas and Electric Earnings

Net earnings of Western States Gas & Electric Company for the month of April were 16.7 per cent greater than for the corresponding month of 1917, while gross earnings increase for the same period was 15.7 per cent. Comparative statement is as follows:

Month of April	1918	1917	Increase	% Inc.
Gross earnings	$128,407	$110,810	$17,597	15.9
Net earnings	68,781	58,935	9,846	16.7
Year ended April 30				
Gross earnings	1,474,165	1,282,481	191,684	14.9
Net earnings	647,946	608,872	39,074	6.4

The gas output still shows an increase of approximately 46 per cent over last year. This is due chiefly to the large amount of gas which the Holt Manufacturing Company is continuing to use.

Several Appointments Announced at Dinner Given in Honor of John G. Pew

A farewell dinner was given to John G. Pew, the retiring president of the Peoples Natural Gas Company and the Hope Natural Gas Company, by seventy-five employees at the William Penn Hotel, Pittsburgh, Pa., June 25.

Mr. Pew, after thirty-two years of service with the gas company, will, on July 1, go to Philadelphia as the vice-president and general manager of the Sun Shipbuilding Company. Associated with him will be his brother, J. Edgar Pew, who resigned as vice-president of the Carter Oil Company.

Many friends of Mr. Pew listened to the story of how, thirty-two years ago, he applied for a position with the Peoples company and was given work as a gas fitter's helper. Starting to work installing appliances, his last great work as president has been the directing of the drilling of the deepest well in the world on the Goff farm in West Virginia, which has now reached the depth of 7,386 ft.

For the last thirteen years Mr. Pew has been the directing head of the Hope and Peoples Natural Gas companies.

A. C. Bedford, of the Standard Oil Company of New Jersey, who was present, spoke feelingly of his close association with Mr. Pew and the high esteem in which he was held because of his energy and ability.

Others who responded to the requests of Master of Ceremonies Christy Payne for short talks were: Walter C. Tribbel, of Charleston, W. Va.; Captain M. H. Henning, of Pittsburgh; Martin B. Daly, president of the East Ohio Gas Company, of Cleveland, and Charles Powell, of Fairmont, W. Va., who presented to Mr. Pew, on behalf of the employees a chest of silver and a complete silver service.

A. C. Bedford announced the new officials, the appointment of which was made necessary by the retirement of Mr. Pew. They are as follows:

Hope Natural Gas Company—T. O. Sullivan, general manager and vice-president; John B. Corrin, assistant general manager and vice-president; R. D. Beardsley, treasurer; H. C. Cooper, chief engineer; J. J. Evans, general superintendent.

Reserve Gas Company—John B. Corrin, general manager and vice-president; R. D. Beardsley, treasurer; H. C. Cooper, chief engineer; J. J. Evans, general superintendent.

The Peoples Natural Gas Company—John B. Tobin, general manager and vice-president; H. C. Cooper, chief engineer.

The River Gas Company—John B. Corrin, vice-president and general manager; R. D. Beardsley, treasurer; H. C. Cooper, chief engineer.

T. O. Sullivan leaves the Manufacturers Light & Heat Company, after ten years of service as general manager, to take the position of general manager of the Hope Natural Gas Company, and Mr. Tobin, who has been treasurer of the Peoples Natural Gas Company, is made general manager of that company.

Second Well at Findlay Proves Better Than First

The second gas well that the city of Findlay, Ohio, drilled to take care of the fuel situation at the water works plant is better than the first one. About 50,000 cu. ft. are being used daily and the pressure of the well is between 30 and 40 lb.

New Concern Finds Gas at 24,000 Feet

Gas has been struck at a depth of between 24,000 and 25,000 ft. within 44 miles of New Orleans by the Orleans Oil & Gas Corporation, 603 Godchaux Building.

F. H. Wickett, of Chicago, has been named the first president, with Governor J. N. Gillett, of California; S. L. Aikens, of Denver, Col.; Senator Key Pittman, of Nevada, and W. E. Lawrence, of New Orleans, as directors. The firm is capitalized at $500,000, and holds leases on 22,000 acres in Terrebonne Parish.

June 21 the first well was brought in. It runs 75,000 ft. of gas in twenty-four hours, and is situated 44 miles on an airline from New Or-

leans. The drilling took forty days. Another well has been started and the development of the field will be rushed to completion.

Bond Issue for Chicago Company Under Consideration

The Public Utilities Commission of Illinois has taken under consideration the petition of the Peoples Gas Light & Coke Company for authority to issue $1,500,000 fifty-year 5 per cent general refunding mortgage gold bonds for the purpose of reimbursing the company for funds spent in improvements and betterments between January, 1914, and April, 1916. It was agreed the bonds would be sold at 90, the same at which the last issue was authorized.

Portage Company Asks Gas Rate Raise

Manager A. S. Quackenbush appeared before the city council recently and asked that the finance committee look over the books of the Portage (Wis.) American Gas Company, so that the council might be advised of the company's true condition.

The company will make application to the railroad commission in the near future for an increase in rates to Portage consumers.

Mr. Quackenbush stated that during the last five months the plant, which has in other years showed a substantial profit, had run behind $1,440.60. This is caused by present conditions largely from the increased price of coal and labor.

Jackson Rates to Be Advanced

The railroad commission has authorized the Jackson Gas Light Company, which operates a small coal gas generating plant in Jackson, Amador County, Cal., and serves gas for lighting and cooking to about 215 consumers, to raise its gas rates from $2.50 per 1,000 cu. ft. to $4 per 1,000 cu. ft. a month, with a new minimum rate of $1 a meter a month.

At the hearing it was shown that the company has a deficit of $140 each month. The commission says that "while it is a fact that the existing rates of the company are materially higher than rates in similar localities in the State, it is clearly shown that they are not sufficient to yield operating expenses."

Pacific Gas & Electric Gets Extension on Stock Issue

The railroad commission has extended to July 1, 1919, the time within which the Pacific Gas & Electric Company may issue 1,025 shares of its first preferred capital stock in exchange for each share of its original preferred stock still outstanding.

Central Indiana Company Granted Increased Rates

The Public Service Commission of Indiana has just issued an order granting authority to the Central Indiana Gas Company, of Muncie, to increase its rates to large consumers in the towns and cities of Muncie, Marion, Anderson, Elwood, Hartford City, Fairmount, Alexandria, Riverside City and Normal City.

The rates for natural gas were advanced from 30 to 35 cents per 1,000 cu. ft. for all over 5,000,000 cu. ft., and for artificial gas from 30 to 35 cents per 1,000 cu. ft. for all consumed over 2,000,000 cu. ft. a month. Not a single objection to the increase was ever presented.

Rate Increased at Holyoke

Holyoke's gas rate will be $1.20 per 1,000 cu. ft. beginning July 1. The State board of gas and electric light commissioners has granted the petition of the Holyoke (Mass.) Municipal Plant for a 20-cent increase.

Gas Raise Proposed at Glenshaw

The Glenshaw (Pa.) Natural Gas Company, operating in the northern portion of Allegheny County, has filed with the public service commission a new tariff, to become effective July 10. The new tariff makes an increase in the rate for natural gas supplied to domestic consumers from 30 cents net to 35 cents net per 1,000 cu. ft., subject to a minimum charge of 70 cents net for gas furnished and service when less than 2,000 cu. ft. are used in any one month.

Increase of 4 Cents Announced for Shreveport

The Southwestern Gas & Electric Company, Shreveport, La., notified the city commission council recently that it would raise rates on gas July 1. The new rate to small consumers is 27 cents net, as compared with the old domestic rate of 22½ cents, an increase of only 4½ cents. The new rate to maximum consumers goes as low as 10 cents net, as compared with the old manufacturers' rate of 7.7 cents.

Gas Rate Increase in Oklahoma

The Oklahoma Natural Gas Company has been authorized by the State Corporation Commission of Oklahoma to charge a minimum rate of 20 cents per 1,000 cu. ft. for natural gas furnished by it in the State, subject to 10 per cent discount. Four Byllesby properties are benefited: Enid, El Reno, Muskogee and Oklahoma City divisions of the Oklahoma Gas & Electric Company.

Surplus Gas of Coke Company Disposed of

The Chattanooga (Tenn.) Gas Company has made a contract with the Lookout Refinery and the Chattanooga Bottling Works to take the surplus gas from the Chattanooga Coke Company. This contract is made in compliance with the suggestion of the Fuel Administration to prevent the waste of a large quantity of gas manufactured by the coke company. The contract can be cancelled at any time the gas company secures a more profitable contract for this gas.

Grant Increase at York

At a special meeting of the city council the Public Service Company, of York, Neb., was granted an increase in the rates of gas asked for, owing to the increase in the price of oil and coal used by the company. The company asked for an increase of 25 cents per 1,000 ft., making the gas cost the consumer $1.85. The increase is to run until Jan. 1, 1919.

Chillicothe Granted Increase

The State public service commission in its consideration of the Peoples Gas & Electric Company, Chillicothe, Mo., application for increase in rates has ordered certain increases as per schedule given below. The chief increase was in raising the minimum rate from 50 cents per month to $1, less 10 per cent for prompt payment. The company's book showed a loss of over $2,000 the past twelve months, which was in addition

to loss of interest on investment of plant. The company two years ago invested $35,000 in extension of its mains and other improvements. These extensions were made with the hope of getting a largely increased patronage and income, but the company has failed to get the number of new patrons that it hoped for, but it expects the business to gradually improve. The following is the new schedule of rates:

For first 8,000 cu. ft., per month, $1.60 per 1,000 cu. ft.; for all above 8,000 cu. ft., $1.50.

A discount of 10 cents per 1,000 cu. ft. will be allowed on all bills for payment on or before the tenth of the succeeding month.

A surcharge of 10 per cent will be added to the net charge for gas actually used.

Gross minimum bill, $1 per month per meter; net minimum, 90 cents per month per meter if paid on or before the tenth of the succeeding month. The rates go into effect July 1.

Increase Denied Des Moines Company

Council recently denied the Des Moines (Iowa) Gas Company an increased rate. Council accepted the recommendations of the gas investigation committee, denying an increase in rate and changing the standard from candle-power to heat unit basis.

A new application has been filed by the gas company, asking for an increase to $1.10 instead of $1.15 per 1,000 cu. ft. and a further reduction in standard.

Port Huron Company Asks for Increase

The Port Huron (Mich.) Gas & Electric Company recently notified the city commission that unless it was permitted to increase the price of gas 10 cents per 1,000 it would have to give an inferior product or shut down the plant. Citizens some time ago turned down the request of the company for increased rates.

Allow Increase in Rates for Chickasha

In an order just issued by the corporation commission, the Chickasha (Okla.) Gas & Electric Company is authorized to raise the gas rates to $1.85 per 1,000 cu. ft., the rate to be effective on and after June 1. This order was issued following a petition filed by the local company with the corporation commission asking that a raise in the rate be permitted.

The commission stated in its opinion and order that it found from the testimony and data submitted by the company, that a raise was justified.

Establishment of Minimum Charge of 50 Cents Requested by Rochester Company

The Rochester (N. Y.) Railway & Light Company has filed with the Public Service Commission, Second District, a new price schedule for gas. Unless the company is restrained the changes stipulated in the new schedule will go into effect on July 1.

Gas users will be affected by the establishment of a minimum charge of 50 cents a month. This includes the service given by the company in Rochester and Canandaigua, and in the towns of Gates, Greece, Irondequoit and Chili. At the present time no minimum charge is made for gas.

Le Mars Plant May Close Down

At a recent meeting of the stockholders of the Le Mars (Iowa) Gas Company it was decided to make three propositions to the city council. The first is that the gas company be allowed to increase the price of gas from $1.50 to $1.80 per 1,000 cu. ft. The second proposition is that the city take over the plant and pay the company $250 per month and 6 per cent interest on physical valuation of stock. The third proposition is that the gas company close down the plant indefinitely.

At a recent meeting of the city council a petition from the gas company for a raise in rate was practically turned down.

Medina Rates Raised

The people of Medina, Ohio, and vicinity, including the villages of Seville, Creston, Leroy and Lodi and intervening territory, received notice from the Medina Gas & Fuel Company that rates would be raised July 1 from 28 cents for 1,000 ft., with a discount of 3 cents if paid before the tenth of the month, to 38 cents, with the same discount.

Hold Up Pay Roll in $10,000,000 Refund Case

City Comptroller Pike in conjunction with Corporation Counsel Ettleson continues to hold up the payroll of the gas investigation relating to the $10,000,000 refund. In short, Mr. Pike refuses to honor warrants unless approved by Mr. Ettleson.

For two months E. W. Bemis, in charge of the inquiry, has borrowed money on his personal security in order to retain the services of engineers, accountants, appraisers and other employees, the loss of which during the hearings, he contends, might materially damage the city's case. In this way he borrowed $16,000 this year, while last year he was compelled to borrow in the same way, and paid $500 interest out of his own pocket. These facts were brought out at a meeting of the city council committee on gas litigation recently.

The fees of Donald R. Richberg, special counsel, which have been tied up for some time, are not involved in Mr. Bemis' payroll. Mr. Richberg's vouchers, especially, have aroused Corporation Counsel Ettleson's ire. He said: "I can't approve them." The aldermen now threaten to drag the city comptroller into the limelight to show cause why he should not approve warrants approved by the city fathers.

Hearing on Fort Atkinson Rates Scheduled for July 3

The hearing in the matter of the application of the Fort Atkinson (Wis.) Gas Company for authority to increase its rates, tolls and charges, will be held in the office of the railroad commission at Madison July 3, at 10 a. m.

In its application to the commission the gas company points out that the present rates:

	Gross	Net
First 2,000 cu. ft., per 1,000	$1.70	$1.60
Next 3,000 cu. ft., per 1,000	1.60	1.50
Next 5,000 cu. ft., per 1,000	1.50	1.40
All over 10,000 cu. ft., per 1,000	1.10	1.00

No minimum charge:

are inadequate to pay operating expenses and that the company is operating at a loss, due to increased cost of all material and increase in freight rates.

The company wants authority to put in effect the following schedule:

	Gross	Net
First 2,000 cu. ft., per 1,000	$1.85	$1.70
Next 3,000 cu. ft., per 1,000	1.75	1.60
Next 5,000 cu. ft., per 1,000	1.65	1.50
All over 10,000 cu. ft., per 10,000	1.25	1.10

A minimum bill of 50 cents monthly.

A charge of $1.50 for reconnecting the same party at the same premise or for party using gas part of the year only at the same premise.

Work of New York Guard in Its Co-operation and Protection of Industries Commended

On June 24 there was held in the city of Albany a meeting of delegates from Chambers of Commerce, Boards of Trade and other commercial organizations of the following-named cities: Albany, Watertown, Hornell, Binghamton, Schenectady, Newburgh, Ilion, New York City (Chamber of Commerce, Merchants' Association, Fifth Avenue Association, Board of Trade and Transportation, and Bronx Board of Trade), Watervliet, Clinton, Utica, Kingston, Niagara Falls, Amsterdam, Canajoharie, Elmira, Rochester, Buffalo, Gloversville, Troy, Peekskill, Saratoga Springs, Glens Falls, Tonawanda, Lockport, Corning, Cohoes, Rome, Syracuse, Oneida, Ithaca and Ballston Spa.

This meeting was held for the purpose of forming an association open to all commercial organizations in the State, which purpose was achieved. At the conclusion of the deliberations, there was unanimously passed the following gratifying resolutions of appreciation of the service now being performed by the New York Guard:

"Resolved, That the delegates of the Commercial Bodies of the State of New York assembled in meeting to-day most heartily commend the work of the New York Guard in its co-operation with and protection of the industries of the State of New York, and especially in guarding their property and the thoroughfares of this great State."

In this connection, it seems appropriate now to publish an appreciation of the valuable assistance which, on numerous occasions since Sept. 1, 1917, has been rendered by the commercial organizations of the State in the recruiting and administration of the new military body known as the New York Guard, now numbering 21,000 officers and enlisted men. How varied have been the methods in which commercial bodies have assisted the guard will be understood from the few following instances:

When difficulties arose in recruiting the two regiments stationed in Buffalo, the Buffalo Chamber of Commerce voted a substantial appropriation for a recruiting campaign and lent it all their powerful influence, with the result that all the desired men for those two regiments were rapidly secured.

It was largely due to the Rochester Chamber of Commerce that the recruiting for the three companies located there was changed from a slow growth of these units to a prompt filling of their authorized strength.

Early in September, 1917, a committee of seven leading business men of New York City, appointed by the Citizens' Preparedness Association, investigated the large warehouse maintained by the Adjutant General's Department in New York City, and known as the State Arsenal, and provided valuable advice as to how that building could be administered in the most economical and business-like manner.

It was deemed advisable that the physical and administrative conditions at two of the State camps be examined and recommendations made upon their management, and this task was undertaken and carried through to success by a committee of important business men appointed by the Chamber of Commerce of New York.

The advice of the Merchants' Association of New York City was sought upon the best office methods to be employed in the finance division of this office, and that association sent to Albany a committee of four of the leading certified accountants of New York City, whose conclusions and recommendations have proved of great value.

The administration of many of the armories of the State has been much improved, thanks to the recommendations of the local Chamber of Commerce or Board of Trade. A number of the companies located at points never heretofore having a company have reported material assistance rendered them by the local Chamber of Commerce in supplying gratuitous drill hall accommodations, etc.

A voluntary mobilization of the Fourth Infantry has been greatly facilitated by the patriotic co-operation of the Chamber of Commerce of Binghamton, which has lent its assistance, both financial and otherwise, toward the comfort and subsistence of the out-of-town units during their stay in that city.

The Albany Chamber of Commerce has twice generously acted as host and entertained at luncheon representatives of commercial organizations and other bodies called together for conferences in that city by the Adjutant General to obtain their business advice, etc.

In view of the foregoing, officers of the New York Guard are instructed to seek and avail themselves of the counsel and co-operation of commercial bodies of their own communities whenever confronted with business questions of local administration in which such counsel would be useful. They will thereby secure the best non-partisan business judgment of their community.

The military affairs of this State must be conducted so as to secure the best results for the money expended. To do this needs the best sort of business advice, and there is none better than that which can be given by the Chambers of Commerce, Boards of Trade and other similar commercial organizations of New York State.

The New York Guard is organized not only because of the requirement of Article XI, Section 3, of the Constitution, requiring the maintenance of at least 10,000 armed men within this State at all times, and to perform the usual military duties always heretofore so well discharged by the New York National Guard, but also to serve the community during this world-crisis in many other ways, such as the work of fire-prevention covered by the fire-fighting squads now established in all companies of the guard; by selling over $25,000,000 of Liberty Loan Bonds; by drilling draftees so that when they reach the Federal camps their military efficiency will be materially advanced; by serving as a training school for officers and non-commissioned officers for the Federal Army, as is evidenced by the large weekly enlistments from the New York Guard into the Federal Army, not only of officers, but also and especially of men qualified to serve as non-commissioned officers, and in many other ways thus far but partially developed.

"Do it for others" should best describe the activity of this extra-military service of the New York Guard. It will be by proceeding in that spirit that the guard will continue to deserve and to receive such gratifying commendations as the one recited above.

A copy of this order will be posted on the bulletin boards at all posts of the New York Guard for a period of thirty days.

By command of the Governor.

CHARLES H. SHERRILL,
The Adjutant General.

Municipal Plant at Santa Clara Increases Rates

The price of gas in Santa Clara, Cal., is going up to $1.50 per 1,000 cu. ft., according to an announcement made by the Santa Clara Municipal Gas Works. The raise is an advance of 25 cents over the schedule adopted Sept. 15, 1913.

Commission Refuses Increase But Allows War Surcharge

The board of public utility commissioners denied the application of the Enterprise Gas Company, which serves Egg Harbor City, N. J., for permission to increase its commercial rate from $1.35 to $1.95 per 1,000 cu. ft., and its industrial rate from $1.05 to $1.50 per 1,000 cu. ft. The board held that the higher rates were not justified by the testimony and also declined to permit the advance because of the company's failure to file a statement showing the appraised value of its property.

The board, however, authorized a new schedule of rates adding a war surcharge to existing rates of 35 cents per 1,000 cu. ft., subject to a 5 per cent discount.

Pass New Gas Ordinance for Waco

An ordinance providing what is thought to be a solution of Waco's gas problem was passed under suspended rules by the city commissioners at a special meeting held June 24. Several weeks ago the commissioners submitted a proposition to the Texas Gas Company which was accepted by that company and has now been officially accepted by the city. The ordinance passed provided for a step-up rate of 60 cents for the first 1,000 ft., 70 cents for 2,000 ft., 80 cents for 3,000 ft., 90 cents for 4,000 ft. and $1.25 per 1,000 for all gas used in excess of 4,000 ft.

The new prices are to go into effect on July 1.

Extension of Time Asked to Build Gas Plant

W. D. Wilcox, president of the East Idaho Gas Company, Idaho Falls, recently returned from Chicago and at the meeting of the city council the question of extending the time of building the gas plant until after the termination of the war was brought up. To undertake to build the plant under the present conditions as regards labor and necessary material would make the cost abnormally high and compel the company to charge a much higher rate for gas than if the construction work could be carried on at lower cost which may be expected upon the conclusion of the war when material now being used for war purposes will again be placed at normal prices. There is a further reason for delay in the erection of the plant, as gas ranges, water heaters and all appliances have greatly advanced in prices. To equip for the use of gas at present will cost from $10 to $25 more than would have been the case two years ago, or than will be the expense a year after peace has been declared. Mr. Wilcox believes that the delay is for the mutual advantage of both the stockholders and the people of the city.

Contra Costa Company Wants to Sell Stock

The Contra Costa Gas Company has filed with the railroad commission an application for authority to issue and sell $50,000 of its stock at 85 per cent par value, the proceeds to be used in part payment of notes owing to the Mercantile National Bank, of San Francisco, aggregating $43,250. This money was originally borrowed from the bank for capital expenditures.

Authorization for Bond Issue Given

The San Diego Consolidated Gas & Electric Company was authorized by the railroad commission June 21 to execute agreements for new financing as a result of a hearing before the board, at which it was brought out that the growth of the company's business called for a substantial increase in capital expenditures.

Owing to the necessity of enlarging the plant, it was estimated that the capital expenditures from May 1, 1918, to May 1, 1920, would be $731,100.

The commission authorized the company to execute an agreement securing the payment of $1,100,000 five-year collateral trust 6 per cent gold bonds, dated July 1, 1918, and to issue $652,800 of five-year collateral trust 5 per cent gold notes, payable July 1, 1923. Authority was also granted the company to issue and pledge as security for the payment of the notes $816,000 of its first mortgage 5 per cent thirty-year-old gold bonds, payable July 1, 1939.

Of the notes authorized, $400,000 face value are to be deposited with the trustee under the agreement to pay or refund a like amount of two-year 6 per cent notes, payable Sept. 1, 1919. The remainder of the notes, $252,800, is to be sold at not less than 95 and interest. The proceeds from $36,800 of the latter notes are to be used to pay floating indebtedness, and the proceeds from the remaining $216,000 are to be deposited in a special fund and spent from time to time as the commission may authorize.

Western States Gas Company Seeks Authority to Issue Notes

The Western States Gas & Electric Company has applied to the California Railroad Commission for authority to create an issue of $1,500,000 five-year 6½ per cent collateral notes, of which $690,000 are to be sold at not less than 94.

Officials Assert That City Rate of 35 Cents Is Not Affected by State Court Decision

Officials of the Union Gas & Electric Company, operating subsidiary of the Columbia Gas & Electric Company, assert that the city's gas rate of 35 cents per 1,000 ft. for natural gas is not affected by the decision of the State Supreme Court, as this decision simply defines the jurisdiction of the State utilities commission to pass on the reasonableness of the rate.

The case will now be taken to the courts on the basis that a 30-cent rate is confiscatory. The company says the 35-cent rate will remain in effect until the question is legally determined in the courts.

Order Reducing Bituminous Coal in All Producing Districts 10 Cents Per Ton

The President of the United States, having heretofore by Executive order dated Aug. 21, 1917, under authority of an act of Congress known as the food and fuel control act and approved Aug. 10, 1917, fixed the prices for the sale of bituminous coal f.o.b. mines in the coal-producing districts set forth in said Executive order, and,

The United States Fuel Administration, acting under authority of an Executive order of the President of the United States dated Aug. 23, 1917, appointing said Administrator and of subsequent Executive orders, and in furtherance of said orders and of said act of Congress approved Aug. 10, 1917, having, after due consideration, from time to time revised some or all of the prices fixed in said Executive order of the President dated Aug. 21, 1917, and having also fixed the prices for bituminous coal f.o.b. mines in certain coal-producing districts for which prices were not fixed in said last-mentioned Executive order.

The United States Fuel Admintrator, acting under authority of said Executive order of the President dated Aug. 23, 1917, appointing said Administrator and of subsequent Executive orders, and in furtherance of said orders and of the act of Congress therein referred to and approved Aug. 10, 1917,

Hereby orders and directs that all prices for bituminous coal f.o.b. mines in the coal-producing districts throughout the United States fixed by the said Executive order of the President dated Aug. 21, 1917, and subsequent orders of the United States Fuel Administrator and in effect at 7 a. m. on May 25, 1918, shall be, and the same hereby are, reduced as to all shipments made after 7 a. m. on May 25, 1918, by the sum of 10 cents for each net ton of 2,000 lb.

This order shall in no way affect the increase contained in the Executive order of the President dated Oct. 27, 1917, adding the sum of 45 cents to the prices fixed for bituminous coal under the terms and provisions set forth in said last-mentioned order.

(Signed) H. A. Garfield,
United States Fuel Administrator.

Engineer Recommends 10 Per Cent Increase for Peoples Company

A. S. B. Little, gas engineer for the State public utilities commission, has recommended to Commissioner Shaw that gas rates be increased about 10 per cent.

Mr. Little reported that the schedule of operating expenses submitted by the Peoples Gas Light & Coke Company in connection with its plea for a 30 per cent increase, contained many large items which should not be taken into consideration in fixing the new rates.

The present rate is 69 cents per 1,000 cu. ft. Mr. Little recommended the rate be increased to 76 cents. This would give the company 7 per cent on its investment, estimated by him to be $54,333,088.

Instead of the existing scale of rates, Mr. Little proposed that:

Thirty cents be charged for the first 350 cu. ft. or less amount a month; 80 cents per 1,000 for the next 1,000 up to 10,000 ft. a month; 70 cents per 1,000 for amounts between 10,000 and 50,000 ft.; 60 cents per 1,000 for amounts of 50,000.

Mr. Little's valuation of the property is considerably less than the amount given to the commission by Samuel Insull, chairman of the board of directors. He testified it was between $95,000,000 and $105,000,000.

The commission will decide the matter July 8. Donald R. Richberg, the city's special attorney in gas litigation matters, is opposing the plan. He contends the city alone has the right to fix gas rates.

Societies and Associations

The Michigan Gas Association will hold its annual convention at the Hotel Statler, Detroit, Mich., Sept. 12-13, 1918. The following program has been arranged: Thursday, 9.30 o'clock a. m.—Roll call; minutes of last meeting; report of executive committee—new members, etc.; committee reports; secretary and treasurer's report; president's address. Thursday, 2 o'clock p. m.—"Future of Carbonization in Medium-Sized Plants," Henry Douglas, Ann Arbor, Mich.; F. W. Seymour, general manager Calhoun Gas Company, Battle Creek; James A. Brown, engineer, Michigan Light Company, Jackson, Mich. Address, "How Gas Companies Can Best Aid in Winning the War," Warren S. Blauvelt, Fuel Administrator, U. S. Government, Washington, D. C. Friday, 9.30 a. m.—(a) "Manufacturing and Selling Gas Ranges in War Times," H. D. Schall, Assistant to vice-president of Detroit Stove Works, Detroit; (b) "Manufacturing and Selling Gas Mantles in War Times," Thomas Flanner, Welsbach Company, Gloucester, N. J.; (c) "Manufacturing and Selling Gas Water Heaters in War Times," F. A. Lemke, secretary Humphrey Company, Kalamazoo, Mich.; (d) "Manufacturing and Selling Gas Industrial Appliances in War Times," Jos. J. Beeman, president Standard Fuel Company, Detroit, Mich. Friday, 1 o'clock p. m.—Selection to be made by executive committee from reputable speakers of national fame. Entertainment program under auspices of the special committee composed of Richard Fowler, Detroit, Mich.; H. D. Schall, Detroit, Mich., and L. B. Young, Detroit, Mich. The foregoing program is subject to change.

The Kings County Lighting Company Employees' Association will hold its first annual outing on Sunday, Aug. 4, at Duer's Pavilion, Whitestone Landing, on Flushing Bay. About 200 people have already indicated their intentions of attending the outing, which, it is planned, will be one of the most attractive affairs of the summer. The trip from the club house of the association, at 4802 New Utrecht Avenue, will be made in large sight-seeing cars. Accompanying them will be a band, and the fun will start from the time the party leaves the club house. At the pavilion a breakfast and dinner will be served, and an athletic program of unusual interest will be given. Handsome prizes have been secured and the winners of the various events will be well repaid for their participation. A tug of war, swimming races, relay race, bowling, potato race, shoe race and similar events will be included. One of the unusual features of the outing lies in the arrangement made by B. A. Flanagan, president, for events that will include every person present at the outing, so that athletic prowess is not a necessity for anyone to compete for the handsome prizes. The offi-

cers of the association are: B. A. Flanagan, president; John MacDonald, vice-president; W. A. Fairservis, secretary; E. J. Kennedy, treasurer, and W. C. Sampson, financial secretary. The following committee is in charge: C. Weidig, chairman; J. E. Powers, Harry Levy, T. Plummer, J. Daly and E. R. Slafer. Games committee—J. I. Blanchfield, chairman; E. W. Shortell, Harry Levy and P. J. McGuinness; prize committee—E. Clifford, Jr., chairman; J. E. Weeks and L. E. Frost; publicity committee—W. A. Fairservis, chairman; J. E. Powers and W. J. Whittier.

Personal Notes

PHILIP H. GADSDEN, chairman of the national committee on public utilities conditions, has opened offices in Washington for the purpose of organizing United States public utilities in the field of the light and power companies, the street railway companies and the gas companies so that they may co-ordinate all their resources toward winning the war. He has been working in Washington for some time as resident member of the War Board of the American Electric Railway Association.

W. S. BALDWIN, superintendent of the Harrisburg (Pa.) Gas Company, has been appointed a member of the organization committee of the Harrisburg Manufacturers' Council to consider problems that are confronting business men to-day.

W. H. REHKER has recently been appointed foreman of gas distribution at Station B, of the Pacific Gas & Electric Company, San Francisco, Cal.

J. D. WALTON was recently appointed assistant superintendent of the Iroquois Natural Gas Company, Buffalo, N. Y.

JAMES P. HUDSON, of New York City, a construction engineer of wide experience, has been given charge of construction work in the Butler County, Kan., field by the Empire Gas & Fuel Company. His headquarters will be in El Dorado. Mr. Hudson was appointed to succeed Robert Ebner, who was transferred to Bartlesville. Mr. Hudson is a graduate of the Engineering School of Purdue University. Prior to going to El Dorado, he was employed on the Pennsylvania Railroad tunnels under the Hudson River at New York City and on other large railroad construction jobs. Mr. Hudson is thirty-four years old, and a native of Virginia.

LAWRENCE O'NEAL, for more than thirty years connected with the Louisville (Ky.) Gas Company, died at his home, 817 Franklin Street. He had been in failing health for about six months.

B. H. JARDINE, business manager of the Pueblo (Col.) Gas & Electric Company, will succeed Luther Gaston as business manager of the Knoxville (Tenn.) Gas Company. Mr. Jardine assumed his new duties July 1.

C. H. HODGES, whose appointment to have charge of seven plants of the Electric Bond & Share Company, with offices in Lewisburg, Pa., was mentioned in the Dec. 1, 1917, issue of the AMERICAN GAS ENGINEERING JOURNAL, has changed his headquarters from Lewisburg to the Northumberland County Gas & Electric Company, Sunbury, Pa.

EUGENE CLIFFORD, JR., has been appointed purchasing agent of the Kings County Lighting Company.

A. C. BEDFORD, of the Standard Oil Company, has been elected president of the Peoples Natural Gas Company, of Pittsburgh, Pa., to succeed John G. Pew, whose resignation was noted in the June 22 issue of the AMERICAN GAS ENGINEERING JOURNAL.

J. FRANK STACEY was elected president and general manager of the Stacey Manufacturing Company, Cincinnati, Ohio, at the annual meeting of the stockholders, June 20. No doubt Mr. Stacey's ability and past experience in the gas business will be an invaluable aid to the company and its customers.

LUTHER GASTON recently left Knoxville, Tenn., and after visiting a number of Eastern and Western cities will go to Spokane, Wash., where he will become business manager of the Spokane Gas & Electric Company. Mr. Gaston was notified two weeks ago of his transfer to the Western city. The employees of the Knoxville Gas Company presented Mr. Gaston with a fine traveling bag as a token of their esteem. Mr. Gaston was sitting in his office when an employee armed with a "forty-four" held him up in the office and told him that he was under arrest on the charge of "bootlegging." Mr. Gaston was handcuffed and escorted to the second floor, where the court was in session. A. W. Young, manager of the company, was the "judge," and the court was filled with witnesses, who were the employees. After the charge was read the "indictment," a fine suitcase was presented.

T. J. WHALEN for fifteen years superintendent of the Michigan Light Company, Jackson, Mich., has resigned. Mr. Whalen is one of the old-timers among our gas men of this country. He entered the employ of the Detroit City Gas Company in 1889 when T. C. Baxter was works superintendent and J. T. Lynn distribution superintendent. After Mr. Baxter and Mr. Lynn left, he remained with B. O. Teppy and H. D. Waldridge for several years. In 1902 he was appointed superintendent of the Jackson gas works, which position he filled until he resigned, Jan. 1, 1918. His twenty-nine years' experience covers all kinds of gas making—coal gas from the old free-firing to the horizontal and inclined ovens. Mr. Whalen is at the present time making a specialty visiting manufacturing departments on consultation work.

THE MILWAUKEE (WIS.) GAS LIGHT COMPANY at its annual meeting elected the following officers: Alanson P. Lathrop, of New York, president; Sheldon J. Glass, first vice-president; Nelson P. Hulst, second vice-president; Ewald Haase, secretary-treasurer, and R. B. Brown, general manager. The board of directors comprise: A. P. Lathrop and Emerson McMillen, New York; S. J. Glass, E. J. Lindsay, Ewald Haase, F. W. Rogers, N. P. Hulst, A. A. Luedtke and R. B. Brown. The chairman of the board is Emerson McMillen.

CHARLES W. WILKINSON, consulting engineer for the Flatbush Gas Company and a resident of Brooklyn for eighteen years, died on June 24, at his home, 295 Midwood Street. He was born in Valley Falls, R. I., fifty-three years ago.

THE GRAND RAPIDS (MICH.) GAS LIGHT COMPANY held the annual picnic of its employees and friends at Garfield-Fletcher playgrounds, June 27.

Construction Notes

Tar Extractors Shipped for New Coke Plants

New coke plants are being installed at Indiana Harbor, Ind., for the Inland Steel Company, and at Detroit, Mich., for the Ford Company, by the Somet-Solvay Company, of Syracuse, N. Y.

The Gas Machinery Company, of Cleveland, Ohio, has recently shipped two P. & A. tar extractors for the Indiana Harbor plant, each of which has a capacity of 18,000,000 cu. ft. of by-product coke oven gas per twenty-four hours, and three duplicate machines are now being shipped to the new Ford plant at Detroit.

The total capacity of the five P. & A. tar extractors is 90,000,000 cu. ft. of gas per twenty-four hours, and the coke, gas, ammonia and light oils will be of great assistance in supplying the great demand for these products.

Danville Plant Enlarged

The plant of the Danville (Ky.) Gas Company has been very materially enlarged and the best service is promised for the future.

Extensive Improvements Being Made at Alexandria

As a result of the installation of a new coal gas making plant consisting of four new "benches," although only two of the four benches are now being operated. There has been considerable improvement in the supply and quality of gas furnished consumers in Alexandria, Va., by the Alexandria Municipal Gas Works.

Superintendent F. W. Latham stated that he expects to have the remaining "benches" completed shortly. After they are completed the city will install a water gas making plant and this work will require about a month.

The work of installing the new plant, consisting of the four benches, which cost about $8,000, was done under the supervision of F. W. Latham, superintendent of the gas works.

New Water Gas Machine Installed at Waukegan

A new water gas machine has been installed at the North Shore Gas Company's plant at Waukegan, Ill.

Large Gas Holder to Be Built at Gary

A $290,000 gas holder will be built by the Gary (Ind.) Heat, Light & Water Company, 146 ft. in diameter and 172 ft. high, capacity 2,000,000 cu. ft. A mile of new mains will be laid. The plant estimates facilities for twelve years' growth will be thus provided.

THE AMERICAN GAS GENERATOR COMPANY is to manufacture gas machinery in Camden; capital, $200,000. Incorporators: Francis J. Smith, William S. C. Boray, Lewis Clark, Camden.

THE GENERAL GAS & ELECTRIC COMPANY recently issued a statement of its subsidiary companies, showing estimated gross revenue for the month of April, 1918 and 1917, and comparison as follows:

	1918	1917	Increase—Decrease Amount	Per Cent
Rutland system	$39,200.06	$36,058.39	$3,141.67	8.7
Northwestern Ohio system	24,000.00	21,232.65	2,767.35	13.0
Sandusky system	40,018.04	49,478.04	9,460.00*	19.1*
Binghamton system	33,576.96	29,013.27	4,563.69	15.7
Sayre system	10,023.12	8,089.44	1,933.68	23.9
New Jersey system	21,820.22	16,589.49	5,230.73	31.5
Interurban Gas Company	655.22	766.38	111.16*	14.5*
Total	$169,293.62	$161,227.66	$8,065.96	5.0

*Decrease.

THE KANSAS GAS & ELECTRIC COMPANY reports gross for May, $166,366, increase $31,381; expenses and taxes $111,241, increase $11,176; net $55,125, increase $19,905; interest charged $31,178, increase $9,888; income after charges $23,947, increase $10,017. Twelve months' gross $1,829,742, increase $138,373; expenses and taxes $1,285,281, increase $137,905; net $544,461, increase $468; interest charges $318,671, increase $88,229; income after charges $225,790, decrease $87,761; dividends on preferred stock, $133,000; balance $92,790, decrease $8,776.

THE PORTLAND GAS & COKE COMPANY reports May gross $141,631, increase $39,014; expenses and taxes $74,608, increase $14,928; net $67,023, increase $24,086; interest charges $29,351, increase $2,545; income after charges $37,672, increase $21,541. Twelve months' gross $1,507,093, increase $227,951; expenses and taxes $818,115, increase $141,561; net $688,978, increase $86,390; interest charges $236,454, increase $20,409; income after charges $342,524, increase $65,981; dividend and preferred stock, $140,000; balance, $202,524; increase, $65,981.

THE AMERICAN GAS & ELECTRIC COMPANY has declared the regular quarterly dividend of 2½ per cent and an extra 2 per cent on its common stock, payable July 1.

THE RICE OIL & GAS COMPANY, Uhrichsville, Ohio; capital stock, $50,000. Incorporators: C. W. Rice, J. L. Rice, H. F. Rice, B. W. Speck, H. P. Copeland.